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PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AT ITS MEETING HELD IN NEW YORK, SEPTEMBER 11, 1855.

THE AMERICAN PHARMACEUTICAL ASSOCIATION convened at the Hall of the New York Medical College, City of New York, September 11th, 1855, at 3 o'clock, P. M.

The President, William B. Chapman of Cincinnati, not having arrived, the meeting was organized by Vice President H. T. Cummings of Portland Me., and Secretary E. S. Wayne, of Cincinnati.

On motion a committee of three were appointed by the Chair to examine credentials, which duty was assigned to Messrs. C. B. Guthrie, Charles Ellis, and W. J. M. Gordon.

The Committee retired, and after a recess reported the following list of delegates accredited to this meeting.

From the Massachusetts College of Pharmacy—S. M. Colcord, Henry W. Lincoln, Ashel Boyden, Henry D. Fowle and Daniel Henchman.

From the Philadelphia College of Pharmacy—William Procter, Jr., Charles Ellis, Edward Parrish, S. S. Garrigues, and Henry C. Blair.

From the New York College of Pharmacy—John Meakim, J. S. Aspinwall, George D. Coggeshall, Benjamin Canavan and W. F. Lindsey.

From the Cincinnati College of Pharmacy—William B. Chapman, Edward S. Wayne, W. J. M. Gordon, A. M. Stevens, and J. C. Parr.

From the Maryland College of Pharmacy—A. P. Sharp.

From the Memphis Pharmaceutical Association—Prof. C. B. Guthrie, S. Mansfield, and Henry Wade.

The following gentlemen having been severally recommended by members of the Association, and endorsed by the Committee as eligible for membership, were elected, viz., F. A. Hegeman, of New York City, A. J. Matthews, of Buffalo, N. Y. and Frederick Stearns, of Detroit, Mich.

The roll was then called by the Secretary. The following members, not before mentioned, answered to their names, viz. Henry F. Fish, of Waterbury, Connecticut; Eugene Dupuy, New York City; and S. P. Peck, of Bennington, Vermont.

On motion the following gentlemen were appointed a committee to nominate officers for the Association, viz., Messrs. Canavan, (N. Y.,) Procter, (Philada.,) Lincoln, (Boston,) Wayne, (Cinn.,) Guthrie, (Memphis,) by the Delegations, and Messrs. Dupuy and Henchman by the Chair. Which committee retired.

The report of the Treasurer being introduced was read, and referred to Messrs. Henry F. Fish and Edward Parrish to be audited.

The report of the Executive Committee was read and laid on the table.

The report of the Committee on the Sale of Poisons, etc., was read, and its consideration postponed.

The Committee appointed to nominate officers reported the following names:

For President—JOHN MEAKIM, of New York.

For Vice Presidents, { Prof. C. B. Guthrie, of Memphis. / Charles Ellis, of Philada. / Henry F. Fish, of Connecticut.

For Treasurer—James S. Aspinwall, of New York.

For Recording Secretary—W. J. M. Gordon, of Cincinnati.

For Corresponding Secretary—William Procter, Jr., of Phila.

For the Executive Committee—George D. Coggeshall, of New York; A. J. Matthews, of Buffalo; S. M. Colcord, of Boston.

The report of the Committee was accepted, and on separate ballots the nominees were elected to the several offices for the ensuing year.

The President elect was conducted to the Chair, and in a per-

tinent speech returned his thanks for the honor conferred upon him, and promised his best exertions for the promotion of the interests of the Association after which, on motion, the thanks of the Association were tendered to the temporary chairman, for his able services in the organization of the meeting.

The names of John Milhau and Oliver Hull of New York City, being brought forward by the Credential Committee, they were duly elected members of the Association.

Prof. Guthrie, Chairman of the Committee on the Statistics of Pharmacy, reported the inability of the committee to make any further report than they had formerly done. On motion of Mr. Parrish, this committee was discharged and the duties that devolved upon it were referred to the Corresponding Secretary, for the ensuing year.

Mr. Ellis, on behalf of the committee on the certificate of membership, appointed in 1853, read a report, from which the following is an extract:

"The committee is impressed with the belief that it is expedient to have a neatly engraved certificate of membership—chaste and appropriate in its design—and in the wording of it adapted to the purposes in view. After careful inquiry as to the cost, and an examination of finely executed engravings upon stone, the committee would recommend a lithograph engraving, having ascertained that such an one of suitable size can be executed, the whole expense not to exceed one hundred and twenty to thirty dollars, including the paper and printing of a sufficient number of impressions. For the purpose of conveying to the members of the Association an idea of the size and character of the engraving, the committee will submit one of a similar character and purpose from the Pharmaceutical Society of Great Britain.

"The committee recommend that the price of the certificate be fixed at three dollars each, and that all the members present be invited to subscribe for a copy, so that the necessary funds may be raised before the adjournment of the Association."

After the reading of this report, Mr. S. M. Colcord requested to read the following remarks relative to the late Chairman of the Committee, Andrew Geyer, of Boston, which was granted.

"Mr. President:—It is with deep regret that I have to announce to the Association the decease of one of its members, since our last meeting. Andrew Geyer, for thirty years or more engaged in the apothecary business in Boston, now sleeps with the silent dead. He was one of us in a far

greater sense than mere membership would imply Our objects were with him matters of every day thought and study; he was a student in pharmacy and medicine to the last of his business career, and one of the most thoroughly read apothecaries in our city; his small library contained the most recent works and bore evidence of attentive perusal; his leisure moments were spent in reading and attention to theoretical pharmacy; he understood the value of a thorough pharmaceutical education, and it was often the subject of conversation between us. In one of my latest interviews, with him he informed me that it was his purpose to send his two clerks to Philadelphia to attend the lectures of that college, and take advantage of the better facilities for a thorough pharmaceutical education offered in that city, with a view to making them adepts in the profession.

As a business man Mr. Geyer was honest in his dealings, energetic and attentive to business, gentlemanly in his deportment, agreeable in conversation, candid in the expression of his views and feelings, and warm in his friendship. His attachment to the objects of our Association, and the warm interest he was pleased to manifest towards us, will long remind us that in his death we have lost the counsel and valuable services of an efficient member, and Pharmacy a sincere friend to its progress and professional advancement."

On motion of Mr. Colcord the following resolution was unanimously adopted, and his remarks preceding were also directed to be placed among the minutes.

Resolved, That this Association has learned with deep regret the death of our esteemed associate, Andrew Geyer, of Boston. His amiable qualities, professional ability, and the warm interest he manifested in our Association, lead us to deplore his death, as of one devoted to the best interests of pharmacy, and a loss to our Association; one for whom we entertained feelings of friendship, and to whose memory we pay this spontaneous tribute of respect.

The consideration of the report on the Certificate of Membership was postponed, and the meeting adjourned to meet on Wednesday morning at 10 o'clock.

September 12th—Morning Session.

The Association was called to order by the President, John Meakim.

The minutes of the last meeting were read, corrected and adopted.

The following gentlemen, being recommended and endorsed

by the Committee on Credentials, were duly elected members, viz. J. P. Dodge, John Canavan, and James T. Maxwell of New York, and William Thomas of Jersey City, New Jersey.

The report of the Committee on Certificate of Membership being in order, the report of Mr. Geyer, of last year, was read, and after again reading the report of Mr. Ellis, the latter was adopted, and the committee were continued.

It was moved by Mr. Parrish that William Procter, Jr. and John Meakim be added to the committee, which committee shall be empowered to decide upon the design, to issue the certificate, and to deliver it to all subscribers and members who may pay for it; which was carried.

It was moved and carried, that the Treasurer pay to the widow of the late Andrew Geyer, fifty dollars, for expenses incurred in getting up a design for certificate of membership.

[Considerable discussion ensued on the reading of the report. The Committee exhibited certificates of the London Pharmaceutical Society, of the Boston College, of the New York College, and the draft of Mr. Geyer, presented at Cincinnati last year. Of these, that of the London Society approached nearest to the idea entertained by the members. It consists of an Arabian, figurative of Avicenna, and an European, figurative of Galen, resting on the opposite sides of a shield, surmounted by a mortar and pestle, symbolic of our profession, whilst twined around the mortar and falling to the foreground is a loose festoon composed of the most important medicinal plants, the whole arranged on a substructure exhibiting three apartments, the middle occupied by an alchemist at his crucible, and others by apparatus symbolical of chemistry and pharmacy. It was suggested by the Committee that this design should be modified by adding the figure of an American Indian presenting the rich gifts of his materia medica to those of the old world, with other symbols appropriate to our position in the Pharmaceutic brotherhood. Objections were made to the adoption of any part of the English certificate, desiring a picture suggestive only of American ideas, but the Committee very properly pointed to the universality of Pharmaceutic Science, and the indebtedness of American Pharmaceutists to their brethren of the old world. The design of Mr. Geyer embraced figures of Apollo, Mercury, and other classical symbols, whilst the general mass of the picture exhibited a modern apothecary-shop with many of its details, to which was added a shield of the United States giving nationality to the whole. This design not being approved of, and it not being probable that all could agree, it was thought best to entrust the whole matter to the Committee, as above stated.—Editor.]

The Committee appointed to report on standards of quality

for those drugs capable of them, with appropriate tests for detecting adulterations, offered a report, which was accepted and the Committee continued.

[This report embraces the following paragraph: "They furthermore have felt discouraged from prosecuting the work by the disregard that is paid to proper qualification in the appointment of officers to carry out the requirements of the drug law. So glaring has this disregard on the part of the Secretary of the Treasury become, that designing druggists at one port, where a strict scrutiny is administered, have their importations of a doubtful nature sent to another port, where a less scrupulous examiner officiates, so that they may be passed. This the Committee *know* to be true, and whilst it continues, no system of accurate standards of quality will benefit the drug market and screen out the adulterated and deteriorated articles. The Committee would earnestly suggest to the Association that some decided step should be taken to remedy this evil, by placing some check on the appointing power, so that it shall not be able to displace qualified officers by incompetent persons, at every phase of the political kaleidescope. If this Association, the several Colleges of Pharmacy and the National Medical Association, would join in a united effort, some impression might be made on Congress with a view to remedying the evil."]

Alfred B. Taylor, Chairman of the Committee appointed "to draft a law regulating the sale of poisons," presented a report, which was accepted and the Committee discharged.

[This Committee did not succeed in drafting a law, from their inability to get at the information relative to existing legal enactments. The report says, "The want, therefore, of all reliable information upon the subject under consideration prevents your Committee from forming any matured or intelligent judgment, or from offering any suggestions as to the expediency of any particular legislative prohibitions, in view of the general welfare. It is doubted, however, whether poisoning is of less frequent occurrence in France, where it is well known very stringent restrictions are established, than in an equal population here, where no such restraints exist. If this be the case, it would certainly form an argument against the establishment of any such 'protective policy' in our own country: every barrier to absolute freedom of trade being confessedly an evil, justifiable or tolerable only by the avoidance thereby of other evils of greater magnitude. The popular jealousy of such restraints, and the improbability or rather the impossibility of inducing any considerable number of States to adopt a common system of Legislation in this matter, would also form an objection to any governmental interference."]

The Committee appointed to inquire whether any and what amendments were required by the law regulating the importation

of Drugs and Medicines to render it more efficient, uniform and advantageous to the public at large, made a long and able report through the Chairman, Prof. Guthrie, which was read, and on motion postponed for action at a future sitting.

Moved and carried that when we adjourn, we meet at 8½ o'clock, P. M.

W. B. Chapman, of Cincinnati, announced the death of our late associate, L. Rehfus, with a few remarks on his long and honorable position in the Pharmaceutical profession at Cincinnati, which he had recently resigned to give his attention to the culture of the grape and the manufacture of wine, concluding by offering the following resolution, which was unanimously adopted.

Resolved That the Association has learned with deep regret the removal by death of our late worthy brother, L. Rehfus; and that a record of this resolution be placed on our minutes.

The Committee on the adaptation of wines of American growth for medicinal purposes, and the probable amount of tartar to be produced, were unable to report, in consequence of the death of Mr. Rehfus, Chairman, but Prof. Guthrie, one of the Committee, stated to the meeting that Mr. Edward S. Wayne had prepared an essay on that subject, which he was invited to read at the opening of the afternoon session.

Then adjourned.

Afternoon Session.

The meeting having been organized by the President, the minutes were read and adopted.

Mr. Wayne then read a minute and able report on the growth and production of wines, tartar, &c., in the west; whereupon Mr. Lincoln offered the following resolution which was unanimously carried.

Resolved, That a vote of thanks be tendered to Mr. Wayne for the very able and interesting report offered by him upon the wine culture, and that it be embodied in the published proceedings.

[Our readers will find an abridgment of this report at page 494.—Editor.]

The report of the Committee on Revising the Constitution, together with a draft of the Constitution as revised, was read, and after considerable discussion, was laid over till the next meeting.

Mr. Colcord gave notice that he would present to-morrow, Art. 2d of the proposed Constitution, omitting the clause on *honorary* members, as amendments to the Constitution.

Mr. Parrish gave notice that he would to-morrow bring forward an amendment of the Constitution, in reference to honorary membership.

The report of the Committee on the drug law was called up and laid over until to-morrow.

Then adjourned to meet at 10 oclock on Thursday morning.

September 13th—Morning Session.

The President having taken the chair, the minutes were read, corrected and adopted.

On motion of Mr. Parrish, it was carried that the Association commence at 12 o'clock an examination of the specimens on the table, and the reading of scientific papers.

Moved by Mr. Colcord and agreed to, that a Committee be appointed to receive any specimens or papers that may be presented to the Association for examination, or otherwise, and report, which duty the Chairman assigned to Messrs. Procter, Coggeshall, and Lincoln.

Moved by Mr. Colcord, and carried that the Constitution be revised by striking out Article 2d, Section 1st and 2d, and adding as follows.

"ARTICLE 2.—OF THE MEMBERS.

Sect. 1*st.* Every apothecary and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, who after duly considering the object of this Association and the obligations of its Constitution is willing to subscribe to them, is eligible to memership.

Sect. 2*d.* The mode of admission to membership shall be as follows: Any person eligible to membership, may apply to any member of the Executive Committee, who shall report his application to the said Committee, and if after investigating his claims they shall approve his election, they shall at the earliest time practicable report his name to the Association and he may be elected by two thirds of the members present on ballot. Should an application occur in the recess, the members of the Committee may give their approval in writing, which, if unanimous and endorsed by the President, shall constitute him a member, and the fact be reported to the Association at the next succeeding meeting.

Moved by Mr. Parrish and adopted that the following section be added to article 2d of the Constitution, viz:

ARTICLE 2.

Sect. (3d.) Pharmaceutists, chemists, and other scientific men who may be thought worthy of the distinction, may be elected *Honorary* members, upon the same conditions and under the same rules that appertain to active members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office nor to vote at the meetings.

Moved by Mr. Colcord and passed that the following section be added to article 2d, viz:

Sect. 4th. Members shall be entitled on the payment of five dollars to receive a certificate of membership signed by the President, one Vice President, and the Secretary, covenanting in writing to return the same to the proper officers on relinquishing their official connection with the Association.

Also moved by Mr. Parrish and carried, that all existing members of the Association be entitled to receive the certificate of membership at the price of subscription reported by the Committee.

The report of the Constitution Committee being called up, on motion it was referred to a new Committee to report next year. The Chair appointed Edward Parrish, S. M. Colcord, and James S. Aspinwall.

The Committee on Home Adulterations reported verbally, through their Chairman, Prof. Guthrie, but this form of report being objected to, it was moved by Mr. Colcord and carried, that the Committee be instructed to report in writing to the Executive Committee, which report, if approved by the President, shall be published with the proceedings; the Committee was continued.

[We have not, as yet, been able to get this report from the Chairman of the Committee; it contained some interesting facts.—EDITOR.]

On motion of Mr. Colcord, it was

Resolved, That the mere publication of reports and other papers, especially reports of Committees not unanimous, shall not be considered as an expression of the views of the Association.

The hour for hearing scientific papers, and for examining specimens, having arrived, Mr. A. P. Sharp, of Baltimore, offered a paper, which he read, on the strength of alcohol and acids, and he was requested to furnish an abstract for publication in the Proceedings.

[The following are the leading points in the remarks of Mr. Sharp. He finds but little regard is paid to the officinal strength of acids and alcohol by the manufacturers, and infers the absolute impossibility that it presents to carrying out to the letter the processes of the Pharmacopœia, where they are used. He has not been able to find pure muriatic acid of greater strength than 1.120 to 1.130, whilst the Pharmacopœia requires it to be 1·160. Common nitric acid he finds not to exceed 1.40, and the "medicinal acid" often not stronger than 1.34, and the strongest he has ever obtained is 1.370, whilst the officinal strength is 1.42, and several of the processes are based on the use of an acid of that strength. He attributes the difficulty in preparing the tincture of chloride of iron and the solution of nitrate of iron to this cause—a deficiency of acid; and observes that either the Pharmacopœia should be altered, or that pharmaceutists should insist on their having their acids made of the proper officinal specific gravity.

Mr. Sharp then directed attention to alcohol. The Pharmacopœia requires it to have the specific gravity .835 or 85 per cent of absolute alcohol by weight. He knows of but two kinds in commerce, 80 and 95 per cent; the latter a mere name only. The strength of alcohol appears to depend on the locality of its manufacture. Ninety-eight per cent in Cincinnati, is ninety-five per cent in New York, and eighty-eight to eighty-nine in Baltimore, which is owing to the instruments used at these places varying in the principle of their graduation. These instruments are intended for testing spirits from 1st to 4th proof, and attention has not been given to the great variation of the expansion of alcohol as the strength increases. Mr. Sharp illustrated the latter fact by an occurrence in Baltimore, where alcohol warranted to be 95 per cent proved to be but 89 per cent, when tested by the specific gravity bottle and a delicate balance; the party who held it not being convinced until he found that his instrument sunk in some alcohol of really 96 per cent, beyond the 100th degree.

Alcoholmeters also differ from the fact that some are intended to indicate the per centage of alcohol by weight, and the others by measure, which of course makes a considerable difference in the scales. Mr. Sharp finds the hydrometers inclosing a thermometer as made by Luhme & Co. of Berlin, are very reliable instruments.—EDITOR.]

A. E. Richards, of Plaquemin, Louisiana, having been previously elected a correspondent, became a member by coming forward and signing the Constitution.

The report of the Committee to audit the Treasurer's account was then taken up and accepted.

The report of the Executive Committee was again called up, read and accepted, and was ordered to be published in the Proceedings.

[From this report we learn that 2000 copies of the Proceedings of the Cincinnati meeeting, and 3000 copies of the address to Pharmaceutists were circulated by the committee.]

The following gentlemen having previously been elected, were present during the session, signed the Constitution, and paid their contributions, viz:

A I. Matthews, Buffalo, New York.
Frederick R. Stearns, Detroit, Michigan.
A. P. Sharp, Baltimore, Maryland.
S. S. Garrigues, Philadelphia, Pennsylvania.
William Thomas, Jersey City, New Jersey.
James S. Aspinwall, New York City.
Benjamin Canavan, " "
F. A. Hegeman, " "
John Canavan, " "
John P. Dodge, " "

Moved and carried, that the Treasurer pay the deficit due the Executive Committee for 1854.

The following gentlemen being recommended and endorsed by the Credential Committee were duly elected.

Isaac Coddington, New York.
Frederick Hall, "
David Scott, Worcester, Massachusetts.
John Buck, Chelsea, "
Robert R. Kent, Boston, "

The report of the committee to inquire whether any and what amendments are required to the law regulating the importation of drugs and medicines to render it more efficient, uniform and advantageous to the public at large, was taken up and on motion of Mr. Colcord was accepted and ordered to be published with the Proceedings.

The yeas and nays being called for on the preceding vote, by Mr. Thomas, resulted in their being but two dissenting voices.

The following resolution offered by Professor Guthrie was adopted unanimously by those indicated.

Resolved, That those members of the Association who are strangers in New York, express their warmest gratitude for the kindness and attention they have received from the New York College of Pharmacy.

The following resolution, offered by Mr. Parrish was adopted. Whereas, the members of this Association, who meet annually to transact its business and forward its objects, have generally no leisure for pursuits not immediately connected therewith :

Resolved, That as a body we decline in advance any convivial or other entertainments, and esteem it important as our members increase to prevent the practice of the last three years, in this respect, from being a precedent in the future.

Moved by Mr. Dodge and adopted, that a committee of three be appointed to report what are the best text-books published, for use and reference, to the next annual meeting. This duty was referred to Messrs. Procter, Sharp and Ellis.

Mr. Colcord having tendered his resignation as a member of the Executive Committee, with satisfactory reasons, on motion, it was accepted and a new election proceeded to by ballot, which resulted in the choice of William Procter, Jr.

On motion of Mr. E. Parrish it was unanimously

Resolved, That the thanks of the Association are tendered to to the President and Secretary for the efficient and zealous performance of their duties.

On motion of H. T. Cummings it was

Resolved, That the duty of spreading a general invitation to druggists and apothecaries of the United States, and especially to those of Baltimore, Washington, and vicinity, and also timely notice to all the members, of the time and place of meeting, be specially referred to the Executive Committee.

Mr. A. P. Sharp, of Baltimore, offered the following resolution, which was passed.

Resolved, That when this Association adjourns, it adjourns to meet in Baltimore, on the second Tuesday of September, 1856.

The Committee on Specimens presented a report of the several articles deposited for examination, which was accepted, and the following resolution, brought forward by the Committee in reference to the depositors was passed.

Resolved, That the thanks of the Association, be and hereby are given to these gentlemen.

[From the report we learn that Messrs. Luhme & Co. of Berlin, through their agency at New York, exhibited a variety of instruments for chemical and pharmaceutical use, among which are several balances, lampstands,

lamps, sp. gravity and alkalimetry apparatus, gas burners, and a set of 36 specimens of alkaloids and other organic principles.

We had the pleasure of examining the article of Messrs. Luhme & Co. at their store 343 Broadway, where all the items of the laboratory for mineral and organic analysis may be had of the most approved patterns and qualities.

Mr. Weckberger exhibited a variety of ethereal products and fruit essences. Among the most interesting articles exhibited were specimens of the flower leaves, fruit and bark of two varieties of Cinchona from New Grenada, the C. lancifolia and the C. cordifolia, from Messrs. Powers & Weightman of Philadelphia. We also noticed a variety of green medicinal plants from the gardens of Tilden & Co., New Lebanon, N. Y., among which were Hyoscyamus, Belladonna, Valerian, Digitalis, etc., and specimens of American argols from Catawba wine, brought from Cincinnati by Mr. Wayne.—EDITOR.]

The following resolutions, offered by W. Procter, Jr., were passed, viz.

Resolved, Inasmuch as the offer of prizes by the Association last year has not been responded to, that this Association again offers the following prizes for the ensuing year, viz:

1st. *Resolved*, That a copy of twenty-three volumes of the American Journal of Pharmacy is offered for the best essay which shall develope the commercial history of all drugs indigenous to the United States, as senega, spigelia, serpentaria, etc., as regards the manner and places of their collection and preparation for the supply of commerce, the amount annually collected, and the channels through which they enter general commerce.

2d. *Resolved*, That the first six volumes of Gmelin's Chemistry be and hereby are offered for the best essay on any subject relating specially to Pharmacy.

To carry out the object of the resolutions in an efficient and impartial manner, it was

1st. *Resolved*, That all essays (in answer to the above resolution) be referred to a special Committee of judges, who will report on their relative merit to the next annual meeting of the Association. This committee to consist of Charles Ellis and W. Procter, Jr., of Philadelphia, and Dr. David Stewart, of Baltimore.

2d. *Resolved*, If, in the opinion of the Judges, none of the

essays received are worthy of the prizes, that they decline awarding them in their report. The contributors may then either withdraw their essays, or leave them in the possession of the Association.

3d. *Resolved*, That the essays contributed for the prizes be delivered, free of charge, to Charles Ellis, 56 Chestnut street, Philadelphia, on or before the second Tuesday of August, 1856, in order to give time for their examination.

There being no further business, on motion of Mr. Colcord, the Secretary proceeded to read the minutes of the several sessions, which being approved, the Association adjourned to meet in Baltimore, on Tuesday, the 9th of September, 1856.

Extracts from a Report on the Production of Wine, Brandy, and Tartar, in the vicinity of Cincinnati. By EDWARD S. WAYNE, of Cincinnati.

"The culture of the grape for the purpose of wine-making in the West is not so recent as is generally supposed. Amongst the earliest settlers of the Ohio valley, were a number of Swiss, French, and Germans, who were well acquainted with the culture of the grape, and being deprived in these wilds of their loved and accustomed beverage, soon saw in the hill-sides of their adopted home a resemblance to those of their native land, and their adaptation to the culture of the grape. It is to them that we are indebted for our vineyards. Their efforts soon attracted the attention of others, who finding the culture profitable, gave it impetus, and year after year the number of acres under cultivation has been rapidly on the increase.

"The earliest record we have of this culture in the West, is in 1796. Dufour mentions that he saw wine made by a Frenchman, at Marietta, in that year. Vineyards were started soon after at Galliopolis, and also at Vevay. They have all, however, fallen into decay. The earliest attempt made in the vicinity of Cincinnati, was by a French political exile, in 1799, whose vineyard was a hill-side, since graded, and now the heart of the city of Cincinnati. This was the beginning of that culture for which the environs of our city have at length become so distinguished.

"The failure of the early vineyards is to be attributed to the want of a suitable variety of the grape, adapted to the peculiarity of the soil and climate; foreign varieties have not been found to succeed well. Those which have been most successful, and produce good wines, are the Catawba and Isabella. The former is chiefly cultivated; the other varieties, of both foreign and native origin, are cultivated to a small extent. The Catawba is a native grape first noticed in North Carolina. The origin of the Isabella is obscure, but is, I believe, now generally admitted to be of foreign parentage. Each variety has, however, some peculiar advantage over the other, either in being more hardy, or the fruit less subject to disease. But although

the Catawba is more liable to the rot, the wine it produces is so much superior to all others that it may be said to be the only variety that is cultivated here with the view of wine-making. There are at present, within a short distance of Cincinnati, 1200 acres under cultivation, and of them, about 800 to 1000 acres are in a bearing condition. The average yield per acre is variously estimated. Particular spots, under favorable circumstances, have produced as high as 1000 to 1200 gallons of wine to the acre. A fair average will be about 400 gallons, which, allowing there to be 1000 acres in bearing, will produce 400,000 gallons of wine. This, at an average price of $1.25 per gallon, amounts to half a million of dollars in value.

"The mode of culture pursued I shall not dwell upon, as I cannot find any two growers who entertain the same views in regard to it. There is much yet to learn on this subject. The methods adapted to foreign wine-culture have not been found to work well in practice here; they require considerable modification; time and experience will, however, overcome all such difficulties. The vines are usually grown from cuttings; these are planted in rows, and from four to six feet apart, and as the vine grows it is fastened to upright posts about eight feet high, and is kept closely trimmed to this height. Other plans are adopted, such as trailing them upon low lattice work, according to the caprice of the grower.

"The culture of the grape, like every other branch of agriculture, is attended with many vicissitudes. The *blight* (Oidium Tuckeri) and the *rot* are the most destructive, and which careful and unremitting toil and culture will not avert. The blight which for the last few years has almost destroyed the vintage of some parts of Europe, is no stranger to the vineyards of the West, and is a disease against which no remedy, as yet, has been discovered. It makes its appearance early in the season, about the time the young fruit is about the size of a pea. There are no premonitory symptoms of its attacks to be observed; everything about the vineyard may look prosperous, and the wine-grower, elated with the prospect of a good crop, may, upon waking in the morning, find that his rich anticipations of yesterday have, like his dreams, vanished; the greater part of his grapes covered with a white dust-like substance, the skins shrivelled, which soon blacken, and the grapes eventually fall to the ground. These attacks continue from time to time, until the vineyard is almost entirely stripped of its promise.

"The origin of this disease has been attributed to various causes; for instance, the want of inorganic constituents in the soil, and to the attacks of parasitic fungi. The appearance of this fungus growth upon the grapes is not the result of either of these suppositions. It is the result of a diseased action, or, in other words, it is the effect, not the cause of the disease, which is undoubtedly the result of atmospheric influences, and beyond human control. I have studied this disease for the last three years, and can form no other opinion in regard to its origin. In the early part of the season, about the time the young fruit is formed, the temperature during the day time is apt to be exceedingly warm, the heat causes a rapid evapora-

tion from the moist soil, and the atmosphere consequently becomes loaded with watery vapor. In the vegetation also the circulation and absorption is accelerated by the genial warmth, its vessels become filled with sap, and the flow of it is kept up by the rapid evaporation of its superfluous watery portion, through the medium of the leaves. Should the night be warm and clear these forces are kept up, but in a diminished degree, and the evaporation from the leaves still continuing the plant remains in a healthy condition; but should the night turn cold, a heavy fog is the result, the plant is surrounded by an atmosphere saturated with aqueous vapor, the evaporation from the surface of the leaves is checked, and a diseased action is the result. As there is a more complex chemical change taking place in the young fruit, it is the most likely to be injured or diseased by this check of forces, diseased action is the result, decomposition ensues, and the fungus growth follows as the result of that decomposition. That such is the origin of this disease, ample opportunities for observation have convinced me, and that the condition of weather stated will be followed invariably by the appearance of it. * * * * *

"Later in the season, about the time the young fruit is stoning, or in other words, the seed hardening, another disease called by wine-growers *the rot*, is apt to make its appearance, and finish the destruction only partially effected by the former. The grapes attacked by it exhibit a dark spot upon their surface, which gradually increases until the whole of the berry is of the same black color, and eventually falls to the ground. This disease is attributed to long continued wet weather at this particular period. The rot this season (1855) has been very destructive, and has destroyed about fifty per cent. of the crop."

[Mr. Wayne believes this supposition to be possible, and also thinks excessive pruning may have something to do with it.—EDITOR.]

"The vintage in the vicinity of Cincinnati commences about the middle of September. This is a busy period with the wine-grower, and requires much care and attention. To insure good wine the grapes must be fully ripe, (dead ripe,) if not the wine will be too acid, and deficient in alcohol, and flavor or bouquet. Every faulty berry must be picked from the bunches. The grapes are mashed in deep tubs, taking care not to crush the stones. The pulp is then thrown upon a coarse seive, and the stems of the grape separated from it.

"The press used is similar to a screw cider-press, and needs no further description."

"The quality of the wine, i. e. its flavor, strength, and acidity, depends in some degree upon the manner in which the grapes are pressed. Some makers press out all the juice at one operation, and consequently make but one quality of wine; others make three pressings from the same grapes, keeping the juice from each pressing separate. In the first operation very little force is used; the juice obtained is much richer in sugar than the sub-

sequent pressings. The wine it produces is consequently stronger in spirit, and is less acid, than the wine produced by pressing out all the juice at once or that from subsequent pressings. The must or juice is now placed in casks which are filled within five or six inches of the bung, and loosely stopped up, and placed in a cool location to avoid too rapid fermentation. Fermentation soon sets in, the temperature of the liquid increases as the process progresses, the clear fluid becomes clouded, the fermentation is gone through in the course of two or three weeks, the wine soon settles and becomes clear, the casks are then filled up, bunged tight and left until February or March, when it is racked off into other casks. Another fermentation again sets in late in the spring. After this is over, the wine is again racked off and is ready for use or sale. Wine rich in sugar may undergo even a third fermentation. It is expedient to protect the wine as much as possible from the oxidizing influence of the atmosphere, which causes a too rapid oxidation of the gluten, and involves a part of the alcohol which it converts into acetic acid. To prevent this, the wine should be exposed as little as possible, either during fermentation, racking off, or in the casks. A method of fermentation has lately been introduced to prevent the influence of the atmosphere during the process. A tin syphon tube is fastened securely in the bung of the cask, the long end of which is placed in a bucket of water. The gases generated by the fermentation are thus allowed to escape, under a slight pressure, but no air admitted, and the aroma prevented from escaping.

"There is a peculiarity in the fermentation of grape juice differing from that of any other saccharine fluid. All the sugar contained in the juice does not pass by one fermentation into alcohol and carbonic acid. Only a portion of the sugar present undergoes this change, although there is ferment sufficient to produce it. As has been said it commences again in the spring, and even a third time, till all the sugar present is converted into alcohol, and the wine becomes what is called a dry wine, and contains no sugar.

"Other complex chemical changes are taking place also during fermentation, the acid of the must acting on some other constituents is forming an ether which gives the wine its peculiar *bouquet*, and the tartar that was held in solution in the original must, as the alcohol increases, is slowly deposited upon the sides of the cask in a crystalline form."

"The next and most important subject will be the wine produced, its characteristics and analysis. The wine is a light, dry, acidulous one; the foreign wine that it most resembles is a dry Hock, *i. e.* in its amount of alcohol, and in being slightly acid to the taste, but the flavor is entirely different. There is a great difference in the color of Catawba wine; some specimens are of a ligh red or pinkish tint; others of a straw color. The red color is from allowing too much of the skins of the grape to remain in the must, which imparts to the wine a portion of their coloring matter. They also give the wine a rough taste derived from tannin.

"A very great difference is to be observed in the wine produced by different growers, such as deficiency in bouquet, excess of acid, and want of spirit, arising from variation in the weather or want of care or skill in the maker.

"As a general thing the Catawba wine contains much more acid than foreign wines of similar character. This is not because the grapes will not produce as good wine, but is due to want of care in making. The proprietors of many of the vineyards are possessed of but little means, and have not at hand the proper conveniences to protect their wine. This, however, will be remedied in time by the establishment of extensive wine cellars by Mr. Nicholas Longworth, and other men of capital in this city, who purchase the must from the small growers and finish making the wine. This plan not only opens a market for the sale of the must, but is a great convenience to the wine grower, and will secure a much greater amount of sound wine.

"A large portion of Catawba wine is also made into champaign or sparkling wine. This branch of trade is rapidly on the increase. The number of bottles annually is 200,000. It is in many respects equal to foreign sparkling wine. In making this, the wine is bottled before the second fermentation sets in, and the bottles placed upon their sides in suitable location and temperature to induce fermentation. The converson of sugar into alcohol should be allowed to proceed slowly, or the rapid disengagement of gas (carbonic acid) will burst the bottles and cause loss. Under the most favorable circumstances, from 5 to 15 per cent. is lost during the process. The sparkling character is due to the escape of the free carbonic acid held in solution in the wine by the pressure.

"The wine requires to be frequently handled during the process, to remove the sediment formed, the removal of which requires much dexterity; the mouth of the bottle is slowly depressed, so that the sediment may fall in a body upon the cork; this is then removed, the thumb placed over the open mouth, the sediment removed from the cork, and the latter then replaced. This operation is so neatly done that but a few drops escape. It requires from 6 to 12 months for the wine to ripen. To the original wine some manufacturers add sugar, but in good wine this addition is unnecessary.

"I have recently seen another kind of Catawba wine entirely different from the ordinary dry wine. This is made from grapes that have been picked and placed upon the floor for several weeks to ripen. A chemical change takes place, they lose a portion of their acid and gain a portion of sugar. The evaporation of a part of the water by drying also makes the juice richer in sugar than that of grapes just gathered. The wine it produces is much stronger in alcohol, and also contains some unchanged sugar. Its taste is peculiar, resembling Madeira, but its parentage is very perceptible. The Germans of Ohio call it straw wine.

"Brandy has recently been made from the lees and marc of the grape. That from the lees is the best. It has the peculiar flavor of the Catawba.

Some specimens have an empyreumatic taste, owing to the distillation being effected by a naked fire. The brandy distilled from the marc has rather an unpleasant taste, and contains a large amount of fusel oil, and an oil derived from the seeds of the grape. This is mellowed down and changed in its character by age. It is perhaps now too new to decide what it may become. Catawba brandy is used medicinally by some of our physicians, more from its being pure, than from any superiority over the foreign article.

The greatest objection to the use of our Catawba wine is its acidity, the average quantity of carbonate of potassa required to saturate the acid present in a gallon of French or Rhine wine of ordinary quality, is from 250 to 260 grains. The average of 19 samples of Catawba wine was 591 grains, some specimens requiring as much as 960 grains. This excess of acid arises from pressing the grapes before they are properly matured, or from pressing the marc too closely, as has been before hinted at."

"Below I give you the analysis of three specimens of wine made by Mr. Ross, by submitting the grapes to three pressings. The wine from the first pressing contained 10.87 per cent. of alcohol, and required 375 grains of potassa to neutralize the acid in a gallon. The second pressing contained 10.90 per cent. of alcohol, and required 450 grains of alkali, the third contained 10 per cent. of alcohol, and required 600 grains of the carbonate per gallon.

"One of the most important facts connected with wine growing—the probable amount of tartar produced—I can give but little information upon. None of the wine growers have taken any interest in this part of their products, and its a difficult matter for them to get at any knowledge of it, as the tartar deposits but slowly, and it is considered to be of advantage to the wine to let it remain in the casks. The amount deposited cannot be ascertained. Catawba wine will produce as much as the wines of Europe, but some time must elapse before it will be produced in sufficient quantity to make it an article of trade. The only information I have obtained is that the wine deposits about 3 lbs. of crude tartar from 100 gallons, which, allowing the present crop to be 400,000 gallons, gives 12,000 lbs. of crude tartar as the present produce, which, I presume, is about correct."—*From Proceedings of American Pharm. Association*, 1855. See page 487.

ON A NEW BLISTERING PREPARATION.

By Eugene Dupuy.

[The following extract from a letter from our friend Mr. Dupuy, of New York, presents a novelty of its kind.—Editor.]

During our pleasant, though too short, interview in New York, I showed you a plastic mass, which, I stated, was prepared with

the requisite proportions of Cantharides necessary for making the Blistering Cerate of the U. S. Pharmacopœia, but containing neither wax, resin nor lard.

A peculiar bitumin, from one of the Western States, was sent to me for examination; its permanent adhesiveness, no matter how long exposed to the action of the air, suggested to me the idea of applying it to the preparation of a blistering plaster. I moistened some powdered cantharides with nitro-benzine, for the purpose of disguising the smell of the flies, and then added the requisite amount of the bitumen. A blistering plaster thus made, seems to possess all the qualities of a good epispastic, with a comparatively pleasant odor.

I doubt not, but this peculiar bituminous exudation could be rendered available in the preparation of other plastic compounds of a stimulant nature, when it is desirable to keep them spread for a long time before they are sold. Should yon want a sample of it, I shall be happy to send you some by a convenient opportunity.

CREAM SYRUPS.

To Mr. Wm. Procter, Jr.

Dear Sir:—My experience in reference to the formulæ and to the keeping of the so-called "Cream Syrups," mentioned by you, in the Journal of September last, varies somewhat from those there stated. I flattered myself as one who was among the first to prepare them. I have never used milk, which I think must necessarily diminish their richness. In the preparation of the Cream Syrup, I first make an emulsion of almonds, then the sugar and cream is added, and heated till it comes to a boil, stirring constantly to prevent any separation, (which sometimes occurs, owing to the cream.) This makes a luscious syrup, that will keep a week and over, without being placed in ice. Sometimes a little soda is added, which has the effect to even keep it longer.

I have, since reading the article in the Journal, tried the experiment of preparing Cream Syrup without the emulsion of almonds and without heat, simple sugar dissolved in cream; and, although it makes a nice looking syrup, it did not keep more than three days. Another little matter occurs to me in regard to

either the Cream or Orgeat Syrups, especially as to the last. Many complain that the syrups separate, and I have found it true, both as to some I purchase and as to the others I prepare. This may be prevented by simply keeping it in a bottle having a good cork or glass stopper, and not in one of those mineral water syrup bottles having a metallic cover.

Yours, respectfully,

BRADFORD RITTER.

Oct. 4th, 1855.

ON THE ECONOMICAL MANUFACTURE OF NEUTRAL PER-SULPHTAE OF IRON; AND OF DISINFECTING POWDER.

By CAMPBELL MORFIT, M. D.

As neutral per-sulphate of iron, when associated with plaster and charcoal, constitutes a most efficient deodorizing and disinfecting agent; and its general use being, therefore, desirable, the following method, believed to be new, is proposed for the economical manufacture of it upon a large scale.

Dissolve 100 pounds of copperas in a sufficient quantity of hot water, and while the solution is kept boiling, add, portionwise, 25 pounds of aqua fortis;—taking care that the intervals between the portions shall be long enough to allow the escape of the red fumes arising from the de-oxidation of the aqua fortis, by the iron salt. An acid mixture of per-sulphate and nitrate of iron is thus formed.

To get rid of the nitrate and the excess of acid, powdered chalk must be stirred in until effervescence entirely ceases, and the whole left to repose for some hours, when peroxide of iron, free from manganese, will have precipitated with any redundance of chalk that may have been added. The latter, however, is not in the way for our purpose; and it is, therefore, only necessary to draw off the supernatant liquid and wash once with fresh water. The precipitate is then to be diffused in boiling water, *barely* neutralized with oil of vitriol, evaporated, and brought to pulverulent form by stirring in 500 pounds of charcoal dust and 2000 pounds of ground plaster, and drying in air chambers or by exposure to air.

If it should be required to make pure per-sulphate of iron for

chemical purposes, it is only necessary to omit the charcoal and plaster, and continue the evaporation of the solution to a syrupy consistence, when the sulphate of lime, which it holds, will all crystallize out on cooling. The clear liquid is then decanted into bottles and preserved in that form, as it is very difficult to obtain or keep it in crystals or dry powder.

University of Maryland, Sept. 7th, 1855.

REMARKS ON THE "SARATOGA SALT."

By W. Hodgson, Jr.

During the last winter, the writer of this, desiring to furnish to persons at a distance from Saratoga the benefits of that celebrated water in a more portable form and at a more reasonable rate than the bottled water of the Congress Spring, contrived a formula for such a preparation. This was not done hastily or slightly, nor without laborious and continued study; his object being to produce a reliable substitute for the natural water, and not a mere say-so. During the spring, he was able to offer the "Saratoga Salt" to the public, and to the scrutiny of scientific men; and, on the strength of their approval, to announce it as forming, on solution in water, an accurate imitation of the natural "Congress" Spring water; only differing therefrom in containing a small portion of the ingredients for evolving carbonic acid gas; so small as not to be perceptible to the taste, nor to interfere in any degree with its medicinal efficacy. All the constituents of the natural water—even the most minute, and such as have escaped the notice of ordinary analysis—are included in its composition; and the elements are so arranged, and in such proportion, that their combination, when effected by the affusion of the proper quantity of water, cannot be distinguished, in its sensible or chemical properties, from the water of the Congress Spring, and may be safely considered as identical with it.

The "Saratoga Salt" thus brought before the public, being found to answer the expectations of those who tried it, and the demand becoming considerable, the proprietors of the "Congress Spring" appear to have become uneasy, and have issued a Circular to warn "Southerners and Drinkers of Congress Water" against the supposed inroad upon their prerogative. The public,

therefore, may justly claim to be informed in regard to the reliableness of the substitute offered.

It would scarcely be expected that the author of this chemical preparation should publicly expose the formula, and thus invite competition by his own hand; although the communication of it, if made, would doubtless satisfy any competent chemist, as it has already satisfied Professors Hare, Booth and Rogers, of this city, that the principles of the preparation are the well-known, simple, unchangeable and infallible laws of chemical combination, applied to the production of certain fresh alliances, and the retention of the new combination in solution by means of the known solvent powers of carbonic acid. These principles had already guided the writer, in the contrivance of a previous preparation, (analogous to the one now in question,) in which he had successfully imitated the Saline Chalybeate Water of the Cheltenham Spring, in England. The "Cheltenham Salt" thus prepared, elicited the approbation of the authors of the United States Dispensatory, as may be seen by a reference to page 1312, of the 10th edition of that work. By means of the application of these principles to the "Saratoga Salt," the carbonate of magnesia, the carbonate of lime, the carbonate of iron, and even the silica and sulphate of lime, are caught at the moment of their springing into separate existence as such, and brought into perfect solution. This is, undeniably, in a chemical aspect, a beautiful operation; and, though complicated in its details, yet perfectly simple in its laws, and infallible in its action.

A considerable portion of the Circular above mentioned appears to be aimed at the water of the "Empire" Spring, at Saratoga. The owners of that increasing popular spring, however, are amply competent to vindicate their waters from such vague and transparent aspersions. But with regard to the "Saratoga Salt," the only real argument adduced by the owners of the Congress Spring to support their insinuations and unfounded assumptions, is an expression of Sir Humphrey Davy, which they desire the public to believe implies that such a preparation as might properly claim to be called a "Saratoga Salt," is impracticable. No reference is given, nor any distinct information to enable us to judge under what circumstances the declaration was made, or even, whether it had, after all, any

definite allusion to the Congress water; but Sir H. Davy is quoted as saying:—"It is impossible to recombine [mark that word, *re*-combine,] the ingredients so as to make an article of equal quality, the effect of which will be the same as the natural water." This assertion, however, in relation to Congress water, needs not the great name attached to it, to give it credit; for every chemist, acquainted with the nature of that water, knows well that it would be impossible, after evaporating it to dryness, to "*re*-combine" the ingredients, by re-dissolving the dried natural salt, so as to imitate the natural water. This is all that Sir Humphrey Davy could have meant; as is evident from his using the word "*re*-combine." This we all know cannot be done; and the author of the preparation in question has attempted no such absurdity. But Sir H. Davy never would have said that no chemical combinations could ever be devised, by which the same elements which come together in nature to form the Congress water, might be brought together by art, in a form analogous with that of nature; for he knew otherwise; and his great co-laborer, Faraday, not only knew it, but gave his certificate of approval to a preparation made in England on the very same principles as the Cheltenham Salt mentioned above; as may be seen in the passage in the United States Dispensatory, above referred to. Professor Hare, (late of the University of Pennsylvania,) Professor Booth, (of the Mint of the United States,) and Professor Rogers, (Dr. Hare's successor in the chemical chair of the University of Pennsylvania,) have already given their distinct approval of the principles on which the "Saratoga Salt" is made. Shall we doubt or disregard the judgment of these chemists, because the proprietors of the Congress Spring insinuate or assume that the article should not be relied on?

In regard to their hint in the Circular, that their "old bottles" may be "greedily bought up," for the "purpose of filling them" with the artificial water, they will please to observe that this suggestion to the druggists and other dealers at a distance, came gratuitously from themselves, and not from the manufacturer of the Saratoga Salt.

Should the proprietors of the Spring not be satisfied by the above explanation, let them do me the justice to procure a bottle of the Salt, (each bottle containing enough salt for about two

gallons of the water,) have it properly dissolved in water according to the directions, and have the resulting water carefully analysed by any well-known, competent and *unbiassed* chemical analyst. Should such a chemist, after careful examination, declare and shew, under his own proper name, that this water does not contain the ingredients of the Congress Spring water of Saratoga, and in the due proportion, it will then be more in place for the proprietors to come forth with assertions or insinuations, which, in their application to the present subject, appear to be contradictory to the chemical knowledge and experience of the nineteenth century.

The medicinal effect of the solution of the "Saratoga Salt," the writer has thought it best to leave in the hands of the physicians, confining himself to his own province of chemistry and pharmacy. But it may be well to say that the experience of several of our eminent practitioners has already done much to confirm the identity of this preparation with the natural water.

Dr. Thos. H. Yardley, of this city, speaks on this subject from personal experience, as well as observation in his practice, in the following note, which he permits me to make public:—

"I have myself used, and have been in the habit of prescribing, during the past six months, 'Hodgson's Saratoga Salts,' instead of the bottled Congress Water. I believe their effects are the same; and the facility with which the dry Salts may be carried, renders them a very valuable remedy.

THOS. S. YARDLEY."

"No 381 Arch st., 9th mo. 28th, 1855."

EXAMINATION OF THE SULPHATE OF QUINIA OF MESSRS. POWERS & WEIGHTMAN, OF PHILADELPHIA.

BY EDWARD R. SQUIBB, M. D., U. S. N.
Assistant Director U. S. Naval Laboratory, New York.

MR. WM. PROCTER, JR.

Dear Sir:—Some of the main points in my late paper upon this subject, seem to have been so badly detailed that they altogether escaped the attention of Messrs. Powers & Weightman. Judging from your editorial remarks upon the subject, these must also have been entirely overlooked by you, and probably, therefore, by your readers.

Under these circumstances, I shall be much obliged to you for a little additional space to set forth more clearly these points, and make myself understood.

Messrs. Powers & Weightman say that I acknowledge the statement made in my first communication to have been *practically* and technically incorrect. This is exactly what I did *not* intend to do. The statement was technically incorrect, but not practically incorrect, and the whole object of my last paper was to exhibit the fact, that there was not 10 per cent. of uncombined water in the preparation, but that the preparation was more than 10 per cent. deficient in crystallized disulphate of quinia, or about 10 per cent. deficient in quinia.

Messrs. Powers & Weightman regret that I did not push my experiments still farther to ascertain whether the two atoms of water, calculated as remaining after complete dessication, were really there. The regret is misplaced, for the 3d, 4th and 5th experiments of my paper are directed mainly to this very point; and a comparison of their results shows that the same impure effloresced sulphate of quinia, which, when dried at 242°, lost 5.431 per cent. (Exp. 3.) yielded on subsequent analysis 8.50 per cent. of water. (Exps. 4th and 5th.)

Then 8.53—5.431 = 3.099 = the percentage amount of water still retained by the salt when dried at 242°.

This 3.099 per cent. of water happens to be exactly 1.5 equivalents. With the pure recrystallized sulphate the results were very different. In it "nearly the whole of the water of crystallization" was "driven off at a temperature short of fusion." (Exps. 3d, 6th and 7th.)

All authorities agree that crystallized disulphate of quinia requires 30 times its weight of boiling water for complete solution, whilst this commercial salt is soluble in 20.96 times its weight, or less. (Exp. 2d.)

The influence of air and a temperature of 242°, does not alter quinia when in combination with a fixed acid, and not in solution. If the simple processes of an examination under the influences of heat and air are inadmissible, we must, of course, give up research into the purity of the preparation.

If my statements with regard to the impurities of the mother liquor are "very indefinite" to Messrs. Powers & Weightman, it

is because I refrained from saying anything in regard to them that was not based upon accurately detailed experiment.

If, however, my deductions and conclusions in regard to them are needed to render the remarks more definite, I have certainly no objections to state them, qualified by the remark that I did not take the time and trouble that would be necessary to satisfy others than myself upon their precise character. I believe the impurities of the mother liquor consist chiefly of disulphate of quinidia, and of neutral sulphates of quinidia and quinia. The last two salts contain, respectively, 12 and 16 equivalents of water of crystallization, and when dried at 212°, lose, respectively, 19 and 24 per cent. of water. (Pereira, vol. 2, pp. 672 and 674.)

I have very recently noticed that in the translation of Wittstein's Practical Pharmaceutical Chemistry, the composition of crystallized disulphate of quinia is given as containing 10 eq. of water, the points of solubility and reactions common to other authorities being retained. Whilst "Ch. Linck has found (Liebig & Kopp's Annual Report, 1850, vol. 4. p. 284,) that the sulphate of quinia of commerce possesses the formula, $2C_{20}\ H_{12}\ NO_2,\ HO,\ SO_3 + 4HO$, (9.8 per cent. of sulphuric acid, and 8.4 per cent. of water of crystallization) the 4 equivs. HO escape at 130°," (266° F.?)

In reply to your editorial remark, I cannot undertake to examine the sulphate of quinia of any other manufacturers until I have occasion to use their preparations, for I have not the time allotted to me to study the interests of Pharmacy farther than they are immediately connected with my present duties. Should I have made such examinations, however, and have found the preparation of Messrs. Powers & Weightman preferable to all others, it could not certainly change my belief that in this best preparation there is room for much improvement. It is the cause and interests of medicine and pharmacy that I wish to defend; for if it was the interests of Manufacturers that I wished to attack, there are many, doubtless, more vulnerable than those of Messrs. Powers & Weightman.

Very respectfully,

Your obed't serv't.

E. R. SQUIBB.

U. S. Naval Laboratory, New York, September 24, 1855.

LETTER FROM MESSRS. POWERS AND WEIGHTMAN RELATIVE TO THEIR SULPHATE OF QUINIA.

Mr. W. Procter, Jr.

Dear Sir,—Dr. Squibb's third article on the sulphate of quinia, prepared by us, seems to call for a few remarks which we will thank you to permit to accompany his communication.

His first communication on the subject we considered calculated to produce the impression that we had, by some skill in chemical manipulation, succeeded in crystallizing sulphate of quinia with 10 per cent. more water than its acknowledged atomic constitution, and were defrauding the public by selling such an article. To this conclusion, we set off our own experiments by which we obtained very different—but to us satisfactory—results; besides taking exception to the terms of his conclusion.

His second article we did not follow in detail, as he remarked himself that the deductions from the results of his three first experiments were very much confused by the results that followed in his subsequent ones.

About the solubility of sulphate of quinia in boiling water, we had generally considered that 30 parts of water to 1 of it, was pretty accurate, but now submit some results differing from this.

100 parts of sulphate of quinia were added to 2850 parts of distilled water, and boiled; the salt did not immediately dissolve, but upon continuing the ebullition a few minutes, it dissolved entirely. The boiling was continued and the solution weighed from time to time, until, after more than an hour's boiling, the water had become reduced to 1500 parts, plus 100 of sulphate, making 1600 of solution; beyond this point it began to form crystals, which by no subsequent continuance of the boiling could we succeed in redissolving. The boiling was conducted in an egg shaped flask with a long neck, and the flask and contents were weighed together, to ascertain the loss of weight. The quinia was previously tested by ether and ammonia, and gave no indication of cinchonia or quinidia. What occasioned this increased solubility? If a modification of the alkaloid, what change had taken place? With this we leave the intelligent readers of the Journal to form

their own opinions as to what effect had been produced by the continued boiling of Dr. Squibb's experiment.

Had Dr. Squibb stated, in either of his former articles, what he now states in this, that the impurities consist in *his opinion* chiefly of disulphate of quinidia, and of neutral sulphates of quinidia and quinia, we certainly never should have troubled your readers with any communication from ourselves on the subject.

A word also about our pecuniary sensibilities. We consider ourselves perfectly justified in defending our reputation, and as a consequence, our interests. With equal propriety might we refer to the circumstances which called into existence the U. S. Naval Laboratory. The outcry about the adulteration of drugs, chemicals, and medicines, to which it was mainly indebted for its establishment, we are satisfied, has been very much magnified. Our long acquaintance with most of the wholesale druggists has convinced us of their fair dealing and general rectitude.

Very respectfully yours,

POWERS & WEIGHTMAN.

A NEW WET ASSAY OF IODINE AND ITS COMPOUNDS.

By FERD. FEIST MAYER.

1st. If a solution of sulphate of peroxide of copper, blue vitriol, be brought into contact with that of an iodide, a decomposition takes place, one half of the iodine present forming insoluble protoiodide of copper, and the other becoming free [$2\ (CuOSO_3) + 2\ MI = Cu_2I + MO\ SO_3 + I.$] On adding to the mixture thus formed a solution of protosulphate of iron in equal (that is, equivalent) proportions to that of copper, the iodine set free will unite with another part of peroxide of copper, and the oxygen of the latter with part of the protoxide of iron, to form peroxide.

The same reaction, without any loss from free iodine by volatilization, takes place on adding the solutions of the sulphates already mixed, in the proportion of 2 at. of the coppersalt and not less than 2 at. of that of iron to that of (1 at.) iodide. [$2\ (CuO\ SO_3 + 2\ (FeO\ SO_3 + MI = MO\ SO_3 + Fe_2\ O_3,\ 3\ SO_3 + Cu_2\ I$].

2d. The protiodide of copper, $Cu_2 I$, on being heated with a solution of caustic potash or soda, or their carbonates, forms iodide of potassium or sodium, and protoxide of copper. ($Cu_2I + KO = KI + Cu_2O$).

3d. The protoxide of copper, treated with a solution of perchloride of iron and hydrochloric acid, is converted into peroxide of copper, which dissolves in the acid, the oxygen necessary being taken from an equivalent amount of the peroxide of iron ($Fe_2 Cl_3$ Aq.) present.

On either of these reactions a centigrade analysis of soluble iodides or iodine may be founded, which is very simple and the more accurate since in itself it furnishes the means for three distinct determinations, each one serving as control to the other, and at the end of the operation leaves all the iodine acted on in the state of iodide of potassium ready for crystallization.

The reagents employed are the following:

1. Crystallized permanganate of potassa, which is prepared in the most convenient manner from binoxide of manganese, potash and chlorate of potassa, according to Gregory (v. Gmelin's Handbook, Vol. II.), and which may be dissolved to any desired strength in distilled water.

2. A solution of the sulphates of peroxide of copper and protoxide of iron. Both the commercial salts commonly contain, as their principal adulteration, one of the oxides of iron. Neither will in the least endanger the success of the assay, if, before adding it to the iodide, the amount of protoxide of iron be ascertained by means of a standard solution of permanganate of potassa. A perfectly pure protosulphate of iron, however, is that obtained in the preparation of sulphuretted hydrogen from sulphide of iron and sulphuric acid. Commercial bluestone, again, is readily purified by igniting the salt in the form of a coarse powder, moistened with common nitric acid in a Hessian crucible at a red heat and lixiviating when cool. But the easiest method of preparing those sulphates in the manner required is to boil them for a short time in a sufficient quantity of water, slightly acidulated by sulphuric acid, with some copper filings, when all the peroxide of iron present will be reduced to protoxide by the metallic copper, and the peroxide of copper formed be dissolved by the excess of acid.

A solution of this kind, slightly acid and with some metallic copper immersed in it, will keep any length of time without showing the least formation of peroxide of iron, all that might be formed by atmospheric influences being immediately upon its formation reduced by the copper; besides, the amount of sulphate of copper does not come into consideration, since only that of protoxide of iron is required to be constant.

3. A solution of caustic potash, the strength of which is ascertained on alkalimetric principles (by oxalic acid, see below). It may be kept perfectly free from carbonic acid on proceeding in the following manner, as proposed by Mohr. The bottle containing the liquor is closed with a good cork boiled in wax. This holds a common chloride of calcium tube, open at both ends and filled with a mixture of caustic lime and glauber salt, which, according to Graham, entirely prevents the passage of atmospheric air, or, what in this case is the same, carbonic acid, to reach the caustic liquor. From this bottle any desired quantity of potash may be drawn without opening it, by fitting into it a glass tube, bent so as to form a syphon, the inside arm of which reaches to the bottom of the bottle, and the outer somewhat below that, having one of Mohr's brass-clamps affixed,—for a description of which the reader is referred to an elaborate paper on improvements in alkalimetry by the inventor in Liebig's Annalen der Chemie u. Pharmacie, lxxxvi., 129, Dingler's Polyt. Journal, cxxxii., 42, also London Pharm. Journ. xiii., 287.

4. A solution of oxalic acid. For the advantage of this over sulphuric acid we refer as above.

5. A solution of perchloride of iron, which is prepared free from nitric acid or protochloride of iron by dissolving the caput mortuum vitrioli, the ferri peroxidum of the Dublin Pharmacopœia, to saturation in strong muriatic acid. The quantity of peroxide of iron it contains is ascertained and regulated by means of the permanganate of Potassa, according to Marguerite.

The following are the manipulations and the rationale of the assay itself:

When iodine is to be tested, it is obtained in solution, by heating it with metallic zinc under water, in the form of iodide of zinc.

Commercial iodide of potassium to be examined must be free from carbonates, which, if present, are removed by the careful addition of sulphuric acid.

Liquids containing hydrothion, free or combined, as is frequently the case with the kelp or varec-lyes, are evaporated to dryness with an excess of hydrochloric acid. (Penny).

I. One equivalent I (126 grammes of the weed-lyes, 12.6 of richer liquids, 1.26 of iodine or iodides in substance,) is treated with a sufficient quantity of the solutions of sulphates (160 grammes of Cu OSO_3 (anhydrous,) and at least 150 of FeO SO_3). The precipitate of protoiodide of copper, which is almost white in the cold, turns to light brown by heating, and settles readily, when the supernatant liquid may be decanted from the precipitate, which is to be well washed. A filtration is, in most cases, not needed. To the clear liquid a solution of permanganate of potassa is added from a burette, containing in 100 cubic centimeters, one-fifth of an equivalent of the salt to every 2 equivalents FeO SO_3 added, $\frac{1502}{5}$: 150. The reaction is finished when the color of the liquid changes suddenly to a bright red, that is when all FeO left is converted into Fe_2O_3. The number of cubic-centimetres of the manganic solution not added, gives directly the per centage of iodine in the substance to be tested.

II. The well washed precipitate of protoiodide of copper is now treated with a solution of caustic potash, 100 cc. of which are accurately neutralized by the same volume of a solution of oxalic acid, containing one equivalent (63) of the latter. The difference in the amount of caustic alkali for and after the reaction gives in direct numbers the per centage of iodine in the original substance.

III. The brownish protoxide of copper obtained in II., which may be separated from the alkaline solution of iodide of potassium by filtration or decantation, is treated in the water-bath (or over the spirit lamp) with a measured volume (or weight) of a concentrated solution of perchloride of iron and hydrochloric acid, avoiding too large an excess of either. The clear liquor is then tested by means of permanganate of potassa, and if the strength of the solution of the latter be such that the quantity of FeO (72) which is reduced from (80) 1 At. Fe_2O_3 (or Fe_2Cl_3) by (72) 1 At. Cu_2O, is accurately reoxidized by one hundred cc.: the

percentage of iodide is again found in the number of centigrades employed.

NOTE.—The alkaline solution of the iodide of potassium is freed from sulphates and oxalates by treatment with hydrate of lime,

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ON ADULTERATED OIL OF ANISEED.

BY WILLIAM PROCTER, JR.

A few weeks ago, a drug house of this city received a small invoice of oil of aniseed from New York, purporting to be in original packages. On opening one of the cans, they were led to suspect its purity, and requested me to examine it for them. The following results were obtained:—

1st. Its color and odor were correct, except that the latter was not as decided as it should have been.

2d. Its specific gravity at 68° Fahr., carefully ascertained, was .8626, whilst that of a fair commercial oil of anise was .9820. This great levity indicated the presence of some lighter substance.

3. In a graduated tube, accurately divided into sixty parts, the suspected oil was poured until it arose to the 30th division, water was then poured in till it arose to the 60th division. By contact of the water, the oil instantly became milky, and when the mixture, after being shaken, was allowed to stand several hours, it consisted of two layers. The sub-stratum was oily yellow-colored, and occupied six divisions of the measure; the super-stratum, occupying the remaining fifty-four degrees of the measure, was colorless and transparent, and burned with a pale blue flame on a glass rod. This was decanted, and distilled to one-half. The distillate instantly inflamed when brought in contact with a lighted lamp, and burned without residue. When added to a dilute mixture of bi-chromate of potash and sulphuric acid and boiled, the yellow mixture became green, as when alcohol is present, which was undoubtedly the case.

4th. As the specific gravity of the oil in question was .8626, and that of a fair commercial oil .9820, and the admixture with water indicating about one-sixth of true oil and five-sixths of alcohol, the following equation will show that the two experiments corroborate each other, thus,—.9820 (sp. gr. of the true

oil,) + (.835 (sp. gr. of alcohol,) × 5) ÷ 6 = ·8590, which is sufficiently near ·8626 to be admitted.

This is one of the boldest instances of adulteration that has occurred, and points to the necessity of our wholesale dealers being on the look-out. As the transaction was through a drug broker, we had no means of knowing the name of the New York party.

EMPLASTRUM ARNICÆ.

By the Editor.

Notwithstanding the ill repute that arnica flowers have attained among many medical writers, the tincture of arnica has been of late years becoming more and more popular, as a domestic application to bruises and sprains, and some physicians esteem it highly for the same purposes. Arnica *plaster* has also come into use as a strengthening plaster for the back, and, as an application to painful or sprained joints, it has become quite popular. As no formula for the plaster has, so far as we know, transpired, the following recipe is given:

Take of Arnica flowers,	one pound, (Troy.)
Alcohol, (.835)	three pints,
Water,	one pint,
Adhesive plaster (Emp. Resinæ.)	twenty-two ounces (Tr.)

Mix the alcohol and water together, and pour two pints of the mixture over the arnica, previously bruised finely, allow it to stand for 48 hours, pack it in a percolater, and pour on slowly the remainder of the alcohol until three pints of tincture are obtained. Evaporate this tincture in a water bath (or still,) till reduced to a soft resinous extract (weighing about two ounces and a quarter,) and incorporate it by stirring, with the adhesive plaster previously melted, and form it into rolls.

Thus prepared arnica plaster has a deep yellow brown color, is uniform in texture, spreads easily and is adhesive. Where the tincture is ready made, it may be used in the same ratio viz: Oiij. to 22 oz. of Resin plaster, but it is necessary that the st engtb be similar to the above.

ON EXTRACTUM CIMICIFUGÆ FLUIDUM.

To the Editor of the American Journal of Pharmacy:

Having frequent calls for the above preparation in this city, and not having seen any published formula* for it, I offer the following result of a series of experiments suggested by my friend Mr. Thomas S. Wiegand.

Take of Cimicifuga in coarse power,		℥viii.
"	Ether, . . .	f. ℥iv.
"	Alcohol, . . .	f. ℥viii.
"	Dilute Alcohol, q. s.	
"	Water, q. s.	

Mix the ether and alcohol, and digest the root in the mixture for 24 hours. Then transfer to a displacer and displace 12 fluid ounces, adding dilute alcohol to make up the quantity, which should be stood aside to evaporate spontaneously to five fluid ounces. Continue displacing with diluted alcohol till eight fluid ounces have passed, then mix the two tinctures together, digest the residue left in the displacer, for one hour in boiling water, strain and evaporate to two fluid ounces, mix it with the tincture, and after standing forty-eight hours filter.

This preparation contains all the active principles of the root, and with a little care can always be obtained of a uniform, strength.

Trusting this may be of some benefit to the profession,

I am yours respectfully,

Baltimore, Oct. 2d, 1855. JAMES C. LEAMY.

ON ACONITE AND CHLOROFORM LINIMENTS.

(BY A CORRESPONDENT, WITH A NOTE BY THE EDITOR.)

To the Editor of the American Journal of Pharmacy:

DEAR SIR:—Availing myself of the privilege given subscribers in a former number, I would ask the explanation of a phenomenon developed in compounding the following prescription:

* [NOTE. The author has overlooked our formula published at page 107 vol. 26th of this Journal, (March, 1854,) which is similar to the above, except the aqueous treatment. EDITOR.]

℞. Tinct. Aconiti,
Chloroform.
Adep. Suille, aa. ʒij.
Tinct. Sapo. comp. ℥j.
Aquæ. Ammon. ʒij.
Misce et ft. Lin.

Uniting the aqua ammonia and adeps to form a liniment and adding the tinct. sapo. comp. &c., seemed to be the proper mode of procedure; this, however, precipitated the lard. Why is it? The liniment, however, was handsomely formed afterwards by pursuing the following form:

Make a liniment of the lard and water of ammonia—triturate and add the chloroform—triturate and add the tincture of aconite,—triturate and add the comp. soap liniment. I sought an explanation from the maker of the prescription—he could give none. The chloroform is evidently the bond of union between the tincture and ammoniated liniment—but as regards the *rationale*, I am in the dark. Respectfully submitted,

Baltimore, Oct. 6th, 1855. "LÆNO."

NOTE BY THE EDITOR. As our correspondent "Læno" has requested a "rationale" of the above experiments, they were repeated in several different ways to enable us to speak of them intelligibly, although we had made analogous mixtures before.

1st. When lard and solution of ammonia are triturated together, an imperfect ammonia soap results; when the camphorated tincture of soap is added the latter abstracts the water and most of the ammonia, whilst the lard, but slightly altered, separates, owing to its insolubility as "Læno" states. If now the fluid portion is poured off from the fat and the chloroform added to the latter, they unite to form an opalescent solution, which when added, with the tincture of aconite, to the liquid in the bottle, forms a mixture by agitation, as capable of being used as a liniment as a mixture of chloroform olive oil and soap liniment would be, yet which soon separates on standing into two strata, the inferior being the lard and chloroform, whilst the superior consists of the tinctures and ammonia.

2d. Following the order suggested by "Læno" as yielding a better mixture, we found that all worked well until the tinctures were added to the fatty mixture, when the separation took place as in the other instance, although not so quickly, but quite as completely. This mixture is somewhat improved by gently heating the lard and chloroform till a clear solution is effected, and then adding the other ingredients previously mixed in a graduated measure and agitating.

The reason of this separation is evidently the greater affinity of the chloroform for the fatty matter than for the alcohol, weakened as it is by the solution of ammonia, and hence the lard and chloroform act mechanically as if they were a homogeneous heavy oil.

3d. After having thus endeavored to answer "Læno's" query, it may not be out of place to suggest a modification of the above prescription which overcomes the difficulty completely.

R.	Olei Ricini, ...		℥ij
	Chloroformi		
	Spiritûs Ammoniæ		
	Tincturæ Aconiti Radicis	aa.	f. ʒij
	Tincturæ Saponis Camphoratæ		f. ʒj Misce.

In combining these ingredients but little care is needed, but perhaps the etter method is to weigh the oil in the vial, add the chloroform (by measure) and mix them, then measure the other ingredients, mix them and add the mixture to the oil and chloroform. If a perfectly homogeneous solution is not obtained at once, a few moments heating in a water bath will effect it.

As both castor oil and its ammonia soap are soluble in the tinctures, the rationale is self-evident. By thus using castor oil, the trouble attending the employment of a mortar is avoided, and a much more scientific compound obtained. It may not be out of place to suggest to physicians, in all prescriptions of this class, where it is desirable to unite a fatty vehicle with chloroform or ammonia, (or both,) and tinctures, that castor oil from its solubility in alcohol offers advantages over any other equally bland fixed oil.

ON THE GELATINIZATION OF ETHER.

By M. Grunault.

At a time when the question of local anæsthesia attracts more and more attention, I think it may be useful to make known to practitioners a very simple method of *gelatinizing* ether, which avoids the numerous inconveniences resulting from its great volatility, allows of its action being localized, as well as prolonged as much as may be desirable, without requiring constant surveillance. By the use of the new preparation, we may more easily judge of the anæsthetic action of ether apart from its refrigerant effect, this latter being almost null even when the jelly is employed in the free air.

If we put together into a stoppered bottle, four measures of ether with one measure of white of egg, and briskly agitate them together, the albumen will be soon seen to swell considerably, and by degrees to absorb the entire quantity of ether, forming

with it a thick collodion, which is soon transformed into an opaline, trembling jelly, detaching itself from the sides of the bottle without separating into the two ingredients of which it is constituted. This jelly, much more easily operated with than ether, and without any adherence, is spread with the greatest facility, disengaging but slowly the volatile liquid of which the major part of it is formed. Applied to the skin, and covered with a band of cloth, or still better of caoutchouc, it speedily causes rubefaction without producing by its contact any symptom of vesication. When it begins to dry, a new layer may be applied, and there may thus be submitted to the prolonged action of ether, either exposed to the air or covered, a part of the body more or less extensive, by the means that are employed in the administration of a cataplasm or a sinapism.

The jelly ought to be prepared as required, for the action of ether on albumen continues some time, bringing about by little and little a solidification more and more complete.

By immersing the bottle in water at 158° Fahr., an almost instantaneous solidification is obtained, without the separation of the ether.

1. The proportion of four parts of ether is the strongest which I have succeeded in absorbing by one part of albumen. In fact, to prepare the jelly more rapidly, it would be better to increase a little the proportion of albumen.

2. For the preparation of a fine and homogeneous jelly, it is requisite to use ether that is pure, or at least such as is free from alcohol and acid. This may be obtained from the ether of commerce by agitation with water and magnesia.

3. If circumstances require, various substances may be dissolved in ether—as, for example, cyanide of potassium, camphor, morphia or conia, &c.—and the gelatinization may afterwards be effected.—*London Pharm. Journ., from Journ. de Chimie Médicale*, Sept., 1855.

ON THE DEODORIZING AND DISINFECTING PROPERTIES OF CHARCOAL, LIME, SAND, AND GRAVEL.

A letter appeared in *The Times* of August 22d, addressed by Dr. Sutherland to the Earl of Shaftesbury, on the sanitary

measures which have been adopted for the benefit of our army in the Crimea, in which allusion is made to the use of charcoal, lime, sand, and gravel, for deodorizing and disinfecting purposes. Our attention has been directed to this letter by a correspondent, who thinks Dr. Sutherland is wrong in classing sand and gravel with charcoal and lime for the purposes specified. He enquires whether the action of sand and gravel is not purely mechanical, while that of charcoal and lime is chemical. The subject is one of considerable interest and importance, and one on which some difference of opinion may exist.

Dr. Sutherland says, they use three deodorizing substances—charcoal, lime, and sand or gravel; that charcoal acts extremely well, and in small quantity; that lime also acts very well; and that sand or gravel, for certain purposes, is as good as either, but that a large quantity of this is required to produce the effect, and therefore its use is limited by the difficulty of carriage. He further states that any one of these substances would, he believes, act as a disinfectant, if a proper quantity were used. Lastly, he says that charcoal, in any ordinary quantity is not a disinfectant.

We are not prepared fully to adopt this opinion, but at the same time we do not think it is subject to the objection urged by our correspondent. There is reason to believe that a substance may act completely as a deodorizer while it acts but imperfectly, if at all, as a disinfectant. Dr. Sutherland adduces evidence in confirmation of this view. He says that a ship which took charcoal to Balaklava, having occasion to lay for some weeks in the harbor, close to the wharf, and not far from large accumulations of foul matter, had several cases of cholera on board, although the cargo was being discharged, and the men and every part of the vessel were covered with the dust of the charcoal, bags of which charcoal were piled up on the wharf cose to the vessel. In this case, the charcoal completely deodorized but did not disinfect the air on board the vessel; and to get rid of the disease it was found necessary to send the ship out of the harbor. Dr. Sutherland suggests that when charcoal is used in the ordinary quantities for deodorizing purposes, it would be wise not to apply to it the term "disinfectant," as it might lead to undue expectations, and cause other more efficient measures for disinfection to be neglected.

It is certainly a very important question to be determined, whether, and in what way, or to what extent the offensive odor of decomposing organic matter is connected with infection. We agree with Dr. Sutherland that the terms deodorizer and disinfectant ought not to be commonly used in connexion, as if the one effect necessarily followed the other. In fact, we know very little about infection, its real nature and the *modus operandi* of those substances which have been found or supposed to prevent contagion. It is generally considered that the poison of contagion is destroyed by a process of oxidation, a process similar to that by which offensive odors are usually got rid of. Admitting this, however, it does not follow that the two effects should be necessarily simultaneous.

Charcoal and lime are two of the best known substances for preventing the escape of offensive odors from decomposing organic bodies; but these two substances do not act in precisely the same way. The action of the charcoal, in as far as the charcoal itself is concerned, is mechanical, that is to say, the charcoal does not enter into chemical combination with any of the elements present. On the other hand, the lime combines with some of the products of decomposition. But the true, most active, and efficient agent in destroying contagion, is atmospheric oxygen. Charcoal possesses the property in a very high degree of condensing gases upon its surface, and it is thus capable of bringing large quantities of atmospheric oxygen, in an active state, into contact with the noxious products of organic decompositions, and causing their destruction by an oxidizing action. The action of sand or gravel would be somewhat similar to that of charcoal, but with this difference, that sand and gravel are deficient in that property, which so remarkably distinguishes charcoal, of condensing gases on their surface. The sand or gravel acts simply as a porous mass, the interstices of which are filled with air, and the gaseous products of decomposition, on passing through this mass, are minutely divided and brought into intimate contact with atmospheric oxygen. Dr. Sutherland says, that a stratum of six inches thick of sand placed over ground filled with decomposing bodies entirely deodorized the soil. In this case we have no doubt the action of the sand was such as we have described.—*London Pharm. Journ.* Sept., 1855.

ON THE ARTIFICIAL PRODUCTION OF THE ESSENTIAL OIL OF MUSTARD.

By MM. Berthelot and De Luca.

The authors refer to the investigations of many chemists for the last thirty years upon the nature of essence of mustard, and especially to the researches of MM. Dumas and Pelouze, who in 1833 analysed it, determined the density of its vapor and its principal properties, and discovered the finely-crystalline body thiosinnamine, prepared by the action of ammonia upon the oil of mustard; and to those of M. Wertheim, who has shown that this essence, $C^8 H^5 NS^2$, may be regarded as a compound of oil of garlic, $C^6 H^5 S$, with hydrosulphocyanic acid,—

$$C^8 H^5 NS^2 = C^6 H^5 S, C^2 NS.$$

Upon the preceding data the authors proceed to obtain essence of mustard without the aid of any substance derived from cruciferous plants, by taking glycerine as a starting-point. In a recent memoir, they showed that glycerine treated with iodide of phosphorus furnished iodized propylene, $C^6 H^5 I$. The formula of essence of garlic, $C^6 H^5 S$, only differing from that of iodized propylene in the substitution of sulphur for the iodine, all that was necessary was to effect this substitution, and then to combine the product with hydrosulphocyanic acid, in order to produce oil of mustard.

This double reaction was effected at a single operation by treating iodized propylene with sulphocyanide of potassium,—

$$C^6 H^5 I + C^2 N KS^2 = C^8 H^5 NS^2 + KI.$$

The reaction is completed in a few hours at 212° F. in a close vessel; essence of mustard and iodide of potassium are the principal products obtained.

The liquid produced possesses the known properties of essence of mustard; it exerts the same irritating action upon the eyes and skin, boils at the same temperature, and when treated with ammonia furnishes thiosinnamine in the same manner,—

$$C^8 H^5 NS^2 + NH^6 = C^8 H^8 N^2 S^2.$$

The composition of thiosinnamine thus prepared is,—

	Found.		Calculated.
C . . .	40·9	8	41·4
H . . .	7·0	8	6·9
N . . .	23·0	2	24·1
S . . .	28·0	2	27·6

This thiosinnamine agrees in composition, properties, and crystalline form with that obtained from the natural essence.

This origin of essence of mustard from iodized propylene, a derivative of glycerine, shows that essence of garlic may be derived from propylene, $C^6 H^6$, one of the carburets corresponding with the alcohols; essence of garlic is sulphuretted propylene, and essence of mustard is sulphocyanide of sulphopropylene. This result will no doubt lead to the production of similar compounds from other carburets homologous with propylene, especially from olefiant gas; and the authors intend making some experiments in this direction.

They add, that from the relation between glycerine and essence of mustard established by their experiments, it appears that the latter may be formed by means of the neutral fatty substances, which are so abundant in vegetables, and especially in the Cruciferæ; this will probably throw some light upon the origin of the natural essence.—*Chem. Gaz., from Comptes Rendus*, July 2, 1855, p. 21.

ON HYDRAULIC LIMES, ARTIFICIAL STONES, AND VARIOUS NEW APPLICATIONS OF THE SOLUBLE ALKALINE SILICATES.

By F. Kuhlmann.

Theory of Hydraulic Limes.—The author commences by observing, that all limes, and especially hydraulic limes and natural cements, contain considerable quantities of potash and soda. In a memoir read before the Academy of Sciences on the 4th of May, 1841, he considered that these alkalies served to transfer silica to the lime, so as to form silicates, which, when in contact with water, solidify a part of this body by a process of hydratation analogous to that of plaster. In support of this theory, he instances the immediate transformation of common lime into hydraulic lime by simple contact with a solution of silicate of potash. If, during the burning of a limestone, potash is in contact with silica, the silicate formed must necessarily react, if only at the moment when the burnt lime is brought in contact with water.

Further experiments have proved, that by mixing common

lime with an alkaline silicate, both finely powdered, in the proportion of 10 or 12 parts of the latter to 100 of the former, a lime is obtained presenting all the properties of an hydraulic lime. If the materials were not well pulverized, the reaction would be incomplete, and an effect subsequent to the solidification would soon cause a disintegration. Thus an hydraulic lime of which the strength may be varied at will, may be immediately prepared with lime and a silicate; and this will allow of the economical formation of hydraulic constructions in places where there is no hydraulic lime.

Silicatization; Artificial Stones.—From this the author was led to examine the action of the alkaline silicates upon calcareous stones; and the result of his experiments leads him to expect that in this direction the alkaline silicates may be extensively applied to purposes of utility. By suspending powdered chalk in a solution of silicate of potash, a cement is obtained which hardens slowly in the air, acquiring sufficient hardness to be capable of application under certain circumstances in the restoration of monuments, the manufacture of mouldings, &c.

Chalk, either in the natural state or in the form of an artificial paste, when immersed in a solution of silicate of potash, absorbs a certain quantity of silica even in the cold; and this may become considerable by exposing the stone several times alternately to the action of the siliceous solution and to the air. The chalk acquires a smooth appearance, a close grain, and a color more or less yellowish, according as it is more or less ferruginous. Stone thus prepared is susceptible of a fine polish; and the hardening, which at first is superficial, penetrates by degrees to the centre, even when the stone is of considerable thickness. The process may be employed in formation even of very delicate sculptured ornaments, for when the chalk is very dry, which is essential for the production of good results, the surface undergoes no alteration during silicatization. Thus ornaments of great hardness and unalterable by moisture may be obtained at very small cost, and merely washing ancient monuments formed of soft limestones with a solution of silicate of potash, will preserve them from further decay; the same process may have a still more general application in countries, like Champagne, where chalk is almost the only building material. Since

1841, when these views were first put forward, they have been adopted in practice to a considerable extent.

In the hardening of the siliceous limestones, the carbonic acid of the air appears to separate a part of the silica; and the portions which are in contact with a sufficient quantity of carbonate of lime, pass to the state of silicate of lime.

The author's memoir of 1841 indicated many industrial applications of the artificial injection of mineral substances into the interior of porous bodies, whether organic or inorganic. In the present paper he gives a new series of observations.

The silicatization of sculptures and buildings gives rise to colorations of the stone, which are often very considerable, and render the joints and veins more distinct. In getting rid of this inconvenience, two essential points are to be fulfilled,—chalk walls remain too white, whilst certain ferruginous limestones acquire dark tints. The silicatization of white limestones is effected with a double silicate of potash and manganese. This is a vitreous substance of a deep violet color, which furnishes a brown solution, and this applied in silicatization, deposits a little oxide of manganese in the artificial siliceous paste. Oxide of cobalt also combines, but in smaller quantity, with the silicate of potash; the silica precipitated by a current of carbonic acid is of a fine azure-blue, and this silicate may be employed in the treatment of white marbles. When the stones are too dark, which is the most general case, excellent results may be obtained by suspending in the solution of silicate, small quantities of artificial sulphate of baryta, which, penetrating into the porous stone, at the same time with the formation of the siliceous layer, remains there, entering into a state of chemical combination. The joinings may be made with ordinary cements, lightened in color with white substances; but they may be more completely concealed by fragments of the stone itself, mixed with the vitreous silicate of potash, the whole very finely pulverized, and applied in the form of a liquid paste.

Coloring of Stone.—Stones may be tinged of various colors by impregnating them with certain metallic salts, and afterwards producing precipitates of colored compounds. Thus by impregnating stones with salts of lead or copper, and bringing them in contact with sulphuretted hydrogen gas of hydrosulphate of am-

monia, gray, black, or brown shades may be obtained at will. Salts of copper and ferrocyanide of potassium give coppery tints, &c. When porous limestones, and other bodies of analogous composition, are boiled in solutions of metallic sulphates with insoluble oxides, an evolution of carbonic acid takes place, accompanied by a fixation, at a considerable depth in the stone, of the metallic oxides, which enter into an intimate combination with the sulphate of lime. When the oxides are colored, very pure tints are obtained in this manner. With sulphate of iron, rusty tints of greater or less depth are produced, according to the strength of the solutions; with sulphate of copper the stone receives a fine green tint; sulphate of manganese gives a brown, and a mixture of the sulphates of copper and iron a chocolate color. The author has also experimented with other sulphates, and with mixtures of them. The affinities which cause these reactions are so powerful, that with some sulphates, such as that of copper, the oxides are so completely absorbed, that after boiling with an excess of chalk, no appreciable trace of them is left in the solution. In operating upon mixtures of sulphate of copper and iron or manganese, the oxides of iron and manganese are the first to be precipitated. The sulphates with colorless oxides furnish analogous results, as does also biphosphate of lime.

In most cases, in order to employ tinted stones in building or in the formation of mosaics, it will be advisable to increase their hardness by silicatization. The same will apply to shells, white coral, &c., which may be colored by the same processes, by operating at different pressures.

The double sulphates formed while penetrating into the stone, enter into its composition, and increase its hardness to such an extent, that by the employment of certain sulphates, such as that of zinc, silicatization is rendered less necessary.—*Chem. Gaz., from Comptes Rendus*, June 25, 1855.

CHEMICAL EXAMINATION OF THE CHRYSOMELA ÆNEA.

By J. B. Enz.

In the year 1850, Liebig made the observation that the larvæ of *Chrysomela Populi* contains salicylous acid. Schneider has noticed the occurrence of this acid in larvæ collected upon wil-

lows, and thinks, like Liebig, that it is formed from the salicine which the creatures take in with their food.

This remarkable phenomenon has induced the author to examine another species of the same genus, namely, the *Chrysomela œnea* (*Alni*, Oken), which lives on the leaves of the alder. He found that these animals contain all the materials of the leaves, many of them however in a modified form. Of the tannin, which gives a blue color with iron, and which the leaves contain in abundance, no trace was to be found in the beetles; and the author therefore thinks that the tannic acid is decomposed in the body of the animal into sugar and gallic acid. But in the contents of the digestive organs, both in the larva and the beetle, he found no gallic acid; but, on the other hand, he states that he detected tannate or gallate of iron in the skin of the larva and in the elytra of the beetle intimately intermixed with the chitine, from which he supposes that their dark blue metallic color may be explained by the presence of this salt. The constituents enumerated by the author, calculated for 100 parts of the living beetles, are as follows:—

1. Water (moisture) . . .	706·0
2. Constituents extracted by ether .	86·0
3. Constituents extracted by alcohol . .	46·0
4. Constituents extracted by water .	60·0
5. Constituents extracted by muriatic acid	32·0
6. Constituents extracted by potash .	32·0
7. Skeleton (chitine)	36·0

The extract 2, consists of fatty oil, wax and chlorophyl, with traces of essential oil; 3, of yellowish-brown resin, osmazome, malate and muriate of potash, soda, lime and sugar; 4, of albumen, animal extractive matter, sugar, formiate, malate, phosphate, muriate, and sulphate of potash, soda, ammonia, lime and magnesia; 5, of gallate of iron, phosphate of lime, magnesia; 6, of humic acid, formed from animal fibre.— *Chem. Gaz., from Vierteljahrschrift für Prakt. Pharm.*

SIMPLE METHOD OF PREPARING THE PROTOXIDES OF IRON, MANGANESE AND TIN.

By Prof. Liebig.

Prof. A. Vogel's description of the preparation of his excellent polishing powder from protoxalate of iron has been an inducement to the investigation of some other oxalates, especially the protoxalates of manganese and tin, which, as I have found, may be obtained perfectly anhydrous.

Protoxalate of manganese is obtained, like the iron salt, by precipitating a protosalt of manganese with free oxalic acid; it is a white pulverulent precipitate, with a tinge of red. When heated to 212°–248° F., it loses all its water; and when heated in this state in a common combustion-tube, it furnishes carbonic acid and carbonic oxide gases in exactly equal volumes, and leaves a pure protoxide of manganese of a pale green color, which, when touched with a red-hot body, ignites and smoulders into protoperoxide of manganese.

Protoxalate of tin behaves in exactly the same manner, and these two preparations may be employed in the formation of pure protoxide of manganese or tin as a class experiment. The decomposition of protoxalate of iron described by Vogel, furnishes a protoxide of iron, which is not quite free from metallic iron, but which is at any rate the purest that can be prepared in an anhydrous state; it ignites spontaneously in the air, and burns like a pyrophorus to oxide of iron. Protoxalate of iron contains in 1 atom ($C^4 O^6$, 2 FeO) exactly 4 equivs. of water, as found by Vogel; when heated nearly to its point of decomposition, it loses another atom of water; and the great hardness of the oxide of iron obtained from it by slow combustion in the air depends evidently upon the dry combustion of the protoxide of iron.

I. 3·067 grms. of protoxalate of manganese, dried at 212° F., gave 1·642 grm. of protoperoxide = 50·02 per cent. of protoxide = ($C^2 O^3$, MnO).

II. 3·941 grms. of protoxalate of iron, dried at 302°–320° F., left after calcination 1·857 grm. oxide of iron = 42·4 per cent, of protoxide of iron; the formula $C^4 O^6$, FeO + 3Aq requires 42·11 per cent.

4·336 grms. of the same salt furnished 0·656 grm. of water =15.03 per cent· (formula 15·78 per cent.)

Protoxalate of iron decomposed by itself in a tube, furnished on the average of four experiments 56 vols. of carbonic oxide, and 68 vols. of carbonic acid, instead of equal volumes.—*Chem. Gaz.* Sept. 1855, *from* Liebig's *Annalen*, July 1855.

ON THE OCCURRENCE OF ASPARAGINE IN THE ROOT OF THE ROSE ACACIA (ROBINIA PSEUDACACIA).

By Prof. H. Hlasiwetz.

When extracted with water, the root of *Robini Pseudacacia* furnishes a decoction, in which, when it is evaporated to the consistence of a thin syrup, a considerable quantity of hard, rather large octahedral crystals are formed after a few days' standing. These, after being twice recrystallized, are perfectly colorless and strongly refractive; they do not effloresce, grate between the teeth, and have a slightly sweet mawkish taste. Their solution has a neutral reaction, and evolves ammonia when heated with solution of potash; it is not precipitated by acetate of silver or lead, but basic acetate of lead and protonitrate of mercury furnish white precipitates. When heated, the crystals fuse, the mass afterwards becomes brown, swells up, and evolves an unpleasant ammoniacal odour. Finally, they burn without residue. Sulphuric and nitric acids dissolve them without change.

This body is asparagine, as proved by the following analysis:

C . .	36·32	8 = 48	36·36
H . .	6·21	8	8	6·06
N . .		2	28	21·21
O . .		6	48	36·37

Asparagine appears to occur very commonly in the family of the Leguminosæ, as it has also been found in peas, beans, vetches, liquorice, &c.

The finest preparation is obtained from this root by mere decoction, evaporation, and recrystallizing twice. About 30 lbs. of fresh root furnished more than 2½ oz. of pure substance. This root is therefore to be particularly recommended for the preparation of asparagine.—*Chem. Gaz. Aug.* 15, 1855, *from Sitzungsber, der Akad. der Wiss. zu Wien, Math. Naturw. Classe.*

CHINESE METHOD OF SCENTING TEA.*

A few years ago, I sent you an account of the Chinese method of dyeing teas with Prussian blue and gypsum, to suit our depraved tastes in England and America. I shall now endeavor to describe a much more agreeable and rational manufacture—namely, that of scenting teas. That it is so in the eyes of the Chinese, may be gathered from the fact, that while they *dye* their teas, not to drink, but only to sell, they consume and appreciate highly these scented teas. The following account of this interesting process is copied from my journal:—

"I have been making inquiries for some time past, about the curious process of scenting teas for the foreign markets; but the answers I received to my questions were so unsatisfactory, that I gave up all hopes of understanding the business, until I had an opportunity of seeing and judging for myself. During a late visit to Canton, I was informed the process might be seen in full operation in a tea factory on the island of Honan. Messrs. Walkinshaw and Thorburn, two gentlemen well acquainted with the various kinds of teas sent annually to Europe and America, consented to accompany me to this factory, and we took with us the Chinese merchant to whom the place belonged. I was thus placed in a most favorable position for obtaining a correct knowledge of this curious subject. When we entered the tea factory, a strange scene was presented to our view. The place was crowded with women and children, all busily engaged in picking the stalks and yellow or brown leaves out of the black tea. For this labor each was paid at the rate of six cash a catty, and earned on an average about sixty cash a day—a sum equal to about three pence of our money. The scene altogether was not unlike that in the great Government cigar manufactory at Manilla. Men were employed giving out the tea in its rough state, and in receiving it again when picked. With each portion of tea, a wooden ticket was also given, which ticket had to be returned along with the tea. In the northern tea countries, the leaves are carefully weighed when they are given out and when they are brought back, in order to check peculation, which is

* *Athenæum*, July 21, 1855.

not unfrequent. I did not observe this precaution taken at Canton. Besides the men who were thus employed, there were many others busily at work, passing the tea through various sized sieves, in order to get out the *caper*, and to separate the various kinds. This was also partly done by a winnowing machine, similar in construction to that used by our farmers in England. Having taken a passing glance at all these objects on entering the building, I next directed my attention to the scenting process, which had been the main object of my visit, and which I shall now endeavor to describe.

"In a corner of the building there lay a large heap of orange flowers, which filled the air with the most delicious perfume. A man was engaged in sifting them, to get out the stamens and other smaller portions of the flower. This process was necessary, in order that the flowers might be easily sifted out of the tea after the scenting had been accomplished. The orange flowers being fully expanded, the large petals were easily separated from the stamens and smaller ones. In 100 parts 70 per cent. were used and thirty thrown away. When the orange is used, its flowers must be fully expanded, in order to bring out the scent; but flowers of jasmin may be used in the bud, as they will expand and emit their fragrance during the time they are mixed with the tea. When the flowers had been sifted over in the manner described, they were ready for use. In the mean time the tea to be scented, had been carefully manipulated, and appeared perfectly dried and finished. At this stage of the process, it is worthy of observing, that while the tea was perfectly *dry* the orange flowers were *just as they had been gathered from the trees*. Large quantities of the tea were now mixed up with the flowers, in the proportion of 40 lbs. of flowers to 100 lbs. of tea. This *dry* tea and the *undried* flowers were allowed to lie mixed together for the space of twenty-four hours. At the end of this time, the flowers were sifted out of the tea, and by the repeated sifting and winnowing process, which the tea had afterwards to undergo, they were nearly all got rid of. Sometimes a few stray ones are left in the tea, and may be detected even after it arrives in England. A small portion of tea adheres to the moist flowers when they are sifted out, and this is generally given away to the poor, who pick it out with the hand.

"The flowers, at this part of the process, had impregnated the leaves with a large portion of their peculiar odor, but they had also left behind them a certain portion of moisture, which it was necessary to expel. This was done by placing the tea once more over slow charcoal fires in baskets and sieves prepared for the purpose of drying. The scent communicated by the flowers is very slight for some time, but like the fragrance peculiar to the tea-leaf itself, comes out after being packed for a week or two. Sometimes this scenting process is repeated when the odor is not considered sufficiently strong; and the head man in the factory informed me he sometimes scented twice with orange flowers, and once with the 'Mo-le'—*Jasminum Sambac.*

"The flowers of various plants are used in scenting by the Chinese, some of which are considered better than others, and some can be had at seasons when others are not procurable. I considered it of some importance to the elucidation of this subject to find out, not only the Chinese names of these various plants, but also by examining the plants themselves, to be able to give each the name by which it is known to scientific men in all parts of the world. The following list was prepared with great care, and may be fully relied upon. The numbers prefixed express the relative value in the eyes of the Chinese, and the asterisks point out those which are mostly used for scenting teas for the foreign markets:—

1. Rose, scented (Tsing moi-qui hwa).
1 or 2. Plum, double (Moi hwa).
2*. *Jasminum Sambac* (Mo-le hwa).
2 or 3*. *Jasminum paniculatum* (Sieu-hing-hwa).
4*. *Aglaia odorata* (Lan-hwa, or Yu-chu-lan).
5. *Olea fragrans* (Kwei hwa).
6*. Orange (Chang hwa).
7*. *Gardena florida* (Pak-sema hwa).

It has been frequently stated that the *Chloranthus* is largely used. This appears to be a mistake, originating, no doubt, in the similarity of its Chinese name to that of *Aglaia odorata.* The *Chloranthus* is called 'Chu-lan;' the *Aglaia* 'Lan' or 'Yu-chu-lan.'

"The different flowers which I have just named are not all used in the same proportions. Thus, of orange flowers there are

40 lbs. to 100 lbs. of tea; of *Aglaia* there are 100 lbs. to 100 lbs.; and of *Jasminum Sambac* there are 50 lbs. to 100 lbs. The flowers of the Sieu-hing (*Jasminum paniculatum*) are gen r lly mixed with those of the Mo-le (*Jasminum Sambac*) in the proportion of 10 lbs. of the former to 30 lbs. of the latter, and the 40 lbs. thus produced, are sufficient for 100 lbs. of tea. The 'Qui. hwa' (*Olea fragrans*) is used chiefly in the northern districts as a scent for a rare and expensive kind of Hyson Pekoe,—a tea which forms a most delicious and refreshing beverage when taken *à la Chinoise*, without sugar and milk. The quantity of flowers used seemed to me to be very large; and I made particular inquiries as to whether the teas that are scented were mixed up with large quantities of unscented kinds. The Chinese unhesitatingly affirmed that such was not the case, but notwithstanding their assertions, I confess I have some doubt on this point.

"The length of time which teas thus scented retain the scent is most remarkable. It varies, however, with the different sorts. Thus, the *Olea fragrans* tea will only keep well for one year; at the end of two years it has either become scentless, or has a peculiar oily odor, which is disagreeable. Teas scented with Orange blossoms and with those of the Mo-le, will keep well for two or three years, and the Siu-hing kinds for three or four years. The *Aglaia* retains the scent longer than any, and is said to preserve well for five or six years. The tea scented with the Sieu-hing is said to be most esteemed by foreigners, although it is put down as second or third rate by the Chinese.

"Scented teas for the foreign markets are nearly all made in Canton, and are known to merchants by the names of 'Scented Orange Pekoe,' and 'Scented Caper.' They are grown in and near a place called Tai-shan, in the Canton Province. Mr. Walkinshaw informs me that other descriptions of tea, both black and green, have been scented for the English market, but have been found unsuitable. True 'caper' is to black tea what the kinds called 'imperial' and 'gunpowder' are to green: it assumes a round, shot-looking form during the process of manipulation, and it is easily separated from the other leaves by sifting or by the winnowing machine. It is a common error to suppose that 'imperial' or 'gunpowder' amongst green teas, or 'caper' amongst black ones, is prepared by rolling each leaf singly by the hand.

Such a method of manipulation would make them much more expensive than they are. One gathering of tea is said to yield seventy per cent. of orange pekoe, twenty-five of souchong, and five of caper. The quantity of true caper would therefore appear to be very small; but there are many ways of increasing the quantity by peculiar modes of manipulation.

"In a large factory, such as this at Canton, there is, of course, a considerable quantity of dust and refuse tea remaining after the orange pekoe, caper, and souchong have been sifted out of it. This is sold in the country to the natives at a low price, and no doubt is often made up with paste and other ingredients into those *lie teas* which now-a-days find a market in England. Nothing is lost or thrown away in China. The stalks and yellow leaves which have been picked out by women and children, are sold in the country; while the flowers which have done their duty in the scenting process are given to the poor, who pick out the few remaining tea leaves which had been left by the sieve or winnowing machine. Some flowers, such as those of the *Aglaia* for example, after being sifted out from the tea, are dried, and used in the manufacture of the fragrant 'jos stick,' so much used in the religious ceremonies of the country.

"It appears from these investigations that many kinds of fragrant flowers, besides those used by the Chinese, would answer the purpose equally well, and, therefore, in places like India, where tea is likely to be produced upon an extensive scale, experiments in scenting might be made with any kinds of jasmines, daphnes, aurantiaceous or other fragrant plants indigenous to the country. R. F."

Shanghæ, May 2d.

CONTRIBUTIONS TO TOXICOLOGY.

Translated from "Archiv. d. Pharmacie, March, 1855," and "Buchner's News Repertorium, 1855."

By J. M. Maisch.

On the value of Albumen and Hydrate of Magnesia as Antidotes for Corrosive Sublimate.

The fact that albumen is not a reliable antidote for corrosive sublimate, has induced many to look for another better one, and

such a one was thought to be calcined magnesia. The importance of the matter and the certainty with which the efficiency of magnesia in cases of poisoning with corrosive sublimate was spoken of, induced Dr. L. Schrader, of Goettingen, to make a series of experiments, the results of which are as follows:—

1. Albumen is not a sure antidote to corrosive sublimate. The combination of both is not only soluble in an excess of albumen, but also in the albuminous liquids of the stomach and intestines, and especially in the acids of these organs.

2. Albumen is only useful when mixed with water; it is taken in so large quantities as to cause vomiting, which may also be produced by tickling the throat.

3. Hydrate of magnesia can not be regarded as an antidote, as it does not enter into a harmless combination with corrosive sublimate, but produces red oxide of mercury, which of itself is a very poisonous substance. (*Deustche Klinik*, 1854.)

On Powder of Nux Vomica, by Norbert Gille.

A druggist in Bruxelles sold pulv. nuc. vomic., which, instead of being gray, had a yellow color and a greater specific gravity than the former. On inquiring, it was ascertained that previous to pulverizing, the nux vomica had been dried in a stove.

It was thought that, at least, partly, the alkaloids and lactic acid must have been altered. To ascertain this, 200 grm. of nux vom. was divided into two parts, one of which was heated in the sand bath and the temperature increased until the color was changed to that suspicious yellow; the nux vomica became softer and sent forth alkaline vapors even under 100° C. On extracting the alkaloids, it gave much less of them than the other portion, which had not been exposed to the action of heat. (*Journ. de Pharm. d'Anvers*, 1854.)

Iodine against poisoning with Belladonna.

Suiz Rioya, in "Revue de Thérapeutique Med. Chirurg. 1854, Fevr.," relates a case of poisoning with about 2 drachms of ext. belladon. which was taken by mistake; the case was cured by a solution of 1 grm. iodide of potassium and 20 centigrm. iodine in 750 grm. distilled water; 120 grm. being given half-hourly.

Suiz Rioya mentions this as a proof of the curative powers of iodine, even when the symptoms of poisoning with belladonna are of longer duration; a fact to which Bouchardat has first drawn attention, recommending iodine in such cases as an antidote. (*Buchner's N. Repert. III.*)

Tannin, the best Antidote against Poisonous Fungi.

Dr. Chausarel, of Bordeaux, proves, by a series of experiments, that tannin is the best antidote against poisonous fungæ, and recommends in such cases, if not too much time has elapsed, first, an emetic, to be followed by a decoction of galls, or, if not convenient, of Peruvian, oak or pine bark, a small glassful to be given every five minutes; or, better still, a solution of 30 to 40 grs. tannin in a bottle (1½ pts.) of water. He entirely rejects vinegar, which has been so much recommended. (*Journ. Méd. de Bord.*)

Chemico-legal detection of Copper.

A. Georges, by a number of experiments, has tried to answer the question, whether and in what manner, copper may be discovered; if arsenic was not found in the carbonaceous residue left after the treatment of organic substances with sulphuric acid, as has been proposed by Danger and Flandin for the detection of arsenic.

The results of the experiments are as follows:

1. The residue of the treatment of animal substances with sulphuric acid does not impart any copper to distilled water, and may, therefore, afterwards, be used for the extraction of this metal.

2. Nitric and muriatic acids dissolve a perceptible quantity of copper, which, however, is very small, compared with that remaining undissolved; the simple charring, therefore, must be rejected.

3. Incineration is likewise insufficient, as a volatilization of some copper is always unavoidable.

4. This loss of copper is occasioned by the presence of chlorine in the animal body.

5. Incineration, with previous charring by acids, is not productive of that error, and allows the extraction of all the copper. (*Journ. de Chim. Méd.*)

Poisonous properties of the common Yew-tree.

Dujardin, veterinary surgeon of Bayeux, has observed some cases of poisoning by *Taxus baccata;* horses, sheep, cows, asses and other animals died several hours after they had eaten of the leaves. The poisonous properties, however, were known to the ancients. According to Plutarch, its smoke killed the cats. Strabo says that the Gauls poisoned their lance points with its juice. Theophrastus declares the leaves poisonous for horses, but not for cattle. Plinius relates, that wine which had been put in barrels made of its wood, occasioned the death of those who drank of it. Dioscorides says, its berries are poison to birds. Other authors speak of the dying of fishes, in water into which its roots had been thrown. (*Journ. de Chim. Méd.*)

Hydrocyanic Acid in a corpse, three weeks after death, by Brame.

A young man, of Tours, poisoned himself with medicinal hydrocyanic acid of 1-12th strength, of which he took about 25 grm. Three weeks after his interment, I was called to try to find the poison in the corpse. I succeeded in recognizing it, and ascertaining the quantity of what had remained in the stomach. Nitrate of silver produced a yellowish precipitate, which, after washing and drying in vacuo, assumed a grayish color; it was soluble in ammonia and cyanuret of potassium. By decomposition with potassium, cyanuret of potassium was obtained, of which cyanic acid and Prussian blue could be easily prepared. Suspended in water, hydrosulphuric acid decomposed it, leaving, after separating the sulphuret of silver, a clear solution of hydrocyanic acid; which could also be obtained by decomposition with hydrochloric acid, the vapors of the resulting solution producing a white precipitate in nitrate of silver, soluble in ammonia. The original precipitate, on heating, generated cyanogen and a little water; on heating with caustic potassa no ammonia was evolved.

Three weeks after interment, the hydrocyanic acid still remained in the stomach, apparently without having entered into a chemical composition. I was able to collect yet about 0.60 grm. of cyanuret of silver, corresponding with 0.12 grm. hydrocyanic acid. (*Gaz. Méd. de Paris*, 1855, No. 47.)

On the various antidotes for Copper.

By Dr. L. Schrader.

The results of his critical experiments may be expressed by the following:

1. *Hydrated magnesia* and the *carbonates of the alkalies* are no antidotes to copper, inasmuch as the hydrated oxide of copper is again dissolved by the acids of the stomach and entrails. Magnesia, therefore, may retard the acute course of poisoning, but cannot entirely arrest it.

2. *Hydrated sulphuret of iron* decomposes the salts of copper instantaneously, and sulphuret of copper is insoluble in the digestive organs; but whether the mono-sulphuret of iron could act dangerously by the generation of hydro-sulphuric acid, is to be settled first by further experiments. Larger quantities of it might, at least, molest the stomach and bowels by its volume and state of aggregation.

3. The reduction of the oxide of copper by *sugar*, under the aid of the temperature of the human body, progresses too slowly to be of much value in acute cases of poisoning by copper; sugar may be serviceable, when freely used as sugar-water, by its promoting and even effecting vomiting.

4. If a pharmaceutical remedy is to be applied, *ferrocyanuret of potassium* might best be recommended, because large doses of it do but little harm; it decomposes the salts of copper immediately; and the resulting ferrocyanuret of copper, on account of its almost insolubility, has hardly any poisonous effect.

5. *Albumen and milk* have the advantage not to hurt when taken in excess, and to neutralize the poisonous salt of copper; but this treatment can only be successful, if care is taken to remove, as quick as possible, the newly formed albuminate or caseate of copper from the stomach and bowels. (*Deutsche Klinik*, 1855, No. 4.)

Sulphite of Soda, as an antidote against Mercury.

Dr. Astrié has been endeavoring to discover a remedy, which not only would heal the symptoms occasioned by the abuse of mercury, but which would also allow of a continuance of the mercury, without a recurrence of those mercurial symptoms. This peculiar

effect is produced by the sulphuretted mineral waters; and considering that sulphur, in the channels of digestion, forms sulphurets (?), which act as diaphoretics and alteratives, developing their action on the albuminous substances; that the sulphurets, by the influence of carbonic acid in the mesenteric blood, form a little sulphuretted hydrogen; that they pass through the liver, oxydizing and forming sulphites, hyposulphites and sulphates; from all this he inferred that these last products, and not the sulphurets, must be used, because they are found in the animal excretions, when a somewhat considerable quantity of sulphur has been taken.

If a solution of corrosive sublimate is poured into the white of eggs, until a thick precipitate is formed, a few drops of a solution of sulphite or hyposulphite of soda suffice to restore the transparency of the liquid. The same will be observed, if blood-serum, containing some cruor, is substituted for albumen. The sulphite of soda, however, effects a solution quicker and more perfect.

Mialhe asserts, that all preparations of mercury by a reaction with the chlorides form corrosive sublimate; then the immense importance of the fact of the solution of the albuminate of mercury by sulphite of soda, is at once obvious. The albuminate of mercury which retains the mercury in the body, according to the above, can be dissolved and excreted by the preparations of sulphur.

Sulphite of soda excels all others for its dissolving effect. It may be commenced with eight grs., the dose seldom exceeding a drachm in twenty-four hours. It is very refreshing, with an after-taste somewhat like roasted hazel nuts, and has not the local irritating properties of the sulphurets. It is soluble in four parts of cold water, and may be given in sweetened water or lemon syrup. It agrees well with the stomach and acts diuretic. (*Gaz. Med. Ital. Lombard.* 1854, Aug.)

Lac Magnesiæ as an antidote to Phosphorus, by X. Landerer.

A girl ate about a tablespoonful of the well-known phosphorus paste, mistaking it for rice-pap; the white vapors arising from the mouth soon made the calamity known, and I was applied to for help. I gave her freely lac magnesiæ, (magnesia usta stirred

in sugar-water,) which was taken by the child without resistance. The burning sensation in the stomach and the colic soon subsided, and the presence of phosphorus was detected in the stools by their white vapors and their lumination in the dark. After eight hours the child was out of danger. (*Buchner's Neues Repert.* 1855.)

POISONING BY COLCHICUM—TEST FOR COLCHICIN.

By Dr. Casper.

[Translated and abridged by J. M. Maisch.]

In Casper's Vierteljahrsschrift, III. part 3, the poisoning of four men is related, a case of the greatest interest to physicians and chemists, as cases of poisoning by colchicum are of very rare occurrence, and the reactions of its alkaloid, colchicin, are barely known ; but few chemists, in fact, having ever seen it.

On the 20th of February, last year, the victims took from the room of a physician, in Berlin, Prussia, a demijohn containing a brown liquid, which, from the taste and smell, they supposed to be some stomachic bitters, and partook of it, each one about a wineglass full. A girl, who took a little of it, was taken with vomiting and diarrhœa, but recovered. About the illness of the men, Dr. Casper regrets not to have more authentic accounts, owing to their not being supposed to be poisoned, physicians were not called in until very late. The symptoms previous to death seem to have been nausea, purging and vomiting, pains in the stomach, coldness of the extremities, face very pale, lips little red, tongue in normal condition, *no* delirium, motility and sensibility as usual, pupils not dilated, headache, restlessness, no appetite, much thirst, death under symptoms of prostration,

The post mortem examinations were held on the 23d, in the presence of a large number of physicians and students, attracted by the novelty of these cases.

The examination showed, as common to all four individuals: 1. *Not* a rapid mortification, as is very often stated in medical books to be the case in death from the effects of colchicum. 2. Acid reaction of urine and the liquids of the stomach. 3. Blood thick and of a dark cherry color. 4. Aorta hyperemically filled. 5. Kidneys containing much blood. 6. Bladder more

or less filled with urine. 7. Liver healthy, no accumulation of blood. 8. The right heart overfilled with blood. 9. Lungs about normal, not too much blood. 10. Large brains remarkably much blood.

A chemico-legal examination was required of

1. The stomachs, &c., of all four individuals.
2. The contents of the same.
3. The vomited liquid.
4. The stool of one.
5. The balance of the poisonous liquid.

This last was, according to color, smell, taste and spec. gravity recognized as tincture sem. colch. To admit of no doubt, colchicin was to be prepared from it. The tincture was evaporated to syrup, the residue extracted by absolute alcohol, with a little tartaric acid, filtered, evaporated, a little water added, to separate oil, saturated with bicarbonate of soda, four times its quantity of ether and some caustic soda added to the filtered liquid, and after shaking for some time, the ether was allowed to evaporate spontaneously, when a little yellowish residue was left, corresponding in its reactions with a sample of colchicin, obtained from Mr. Mueller, in Breslau, who had prepared it himself, and stated that he obtained 5 grs. of alkaloid from 1 lb. of sem. colch.; it was easily soluble in water and alcohol, less in ether; taste bitter, acrid, not burning; the aqueous solution occasioning a voluminous white precipitate, with tannin, soluble in alcohol, a kermes-brown with tincture of iodine, and a yellow precipitate with chloride of platinum; concentrated nitric acid dissolved the substance with a violet color, concentrated sulph. acid produced a dark yellow color, changing to a dirty green.

The identity of the liquid (No. 5.) with the officinal tinctura seminis colchici being established beyond a doubt, the contents of the stomach were next subjected to analysis. After proving the absence of injurious metallic substances, they were mixed with absolute alcohol, strained and evaporated at a low heat to a syrup, extracted with absolute alcohol and tartaric acid, and proceeded as above. The residue, after the evaporation of the ether, showed all the reactions of colchicin.

No trace of colchicin could be detected in the vomited liquid (No. 3,) and an analysis of the stool was therefore not deemed

necessary. The report of this chemical examination is by Mr. Schacht; at the same time on the investigation of H. Rose, an analysis was made by Dr. Wittstack.

The best result to attain colchicin was in the following: ½ oz. tinct. sem. colch. with 4 drops acetum concent. was evaporated at 30° R. (100° F.) dissolved in ½ oz. aq. destill., separated from the oil, added 10 grs. magnes. usta, well shaken; after several hours 2 oz. of ether was added, well shaken, the ethereal liquid evaporated spontaneously, the residue taken up with water, some fat separated, filtered and in a watch crystal evaporated, when by its reaction it was proven to be colchicin, with a little fatty acid adhering to or combined with it.

The contents of the stomach were mixed with large quantities of alcohol, mixed with a few drops of muriatic acid, filtered, evaporated at 100° F. to a thin syrup, dissolved in distilled water separated from the fat, carefully evaporated and alcohol added until a precipitate ceased to appear; then evaporated, dissolved in distilled water, filtered, evaporated to about 1 oz., ½ dr. magnes. usta added, and afterwards 3 oz. ether. This was filtered, evaporated spontaneously, dissolved in water, separated from the fat, and then evaporated in a watch crystal, when the residue showed properties and reactions of colchicin.

According to the above, the author thinks it will henceforth be possible to discover and prove poisoning by colchicum, which is very important, as by the above most careful examinations it is doubtless that colchicin, the alkaloid of colchicum, is one of the most deadly poisons. Worthy of notice are the following expressions of Mr. Schacht in this regard:—

"It is remarkable how small a quantity colchicin has a deadly effect on the human being. Each of the four victims is said to have taken about a wine glassful of the officinal tinct. sem. colchici. Suppose the demijohn to have been full, each one could not have taken over four ounces, which are equal to 1oz. of the seed. Mr. Mueller obtained from 16 oz. of seed 5 grs. colchicin. This may be less than the real amount of alkaloid, but on the other hand, the lawful recipe for the preparation of this tincture is not for the complete exhaustion of the seed. Accordingly, each one had taken to the utmost ⅖ or ½ grain of colchicin at once, and such a dose was sufficient to cause death in a short time."—*Archiv. d. Pharm.* 1855, 1–24.

ON THE EXTRACTION OF CAOUTCHOUC.

By M. Weddell.

Caoutchouc may be obtained from a great many plants, but those which yield it in any abundance, are comparatively few in number. They belong to the natural orders Artocarpæ, Apocynaceæ, and Euphorbiaceæ, and inhabit all the warmest parts of the earth.

In *Artocarpeæ* we have,

Castillea elastica (Cerv.) of Mexico,

Cecropia peltata (Linn.) of Tropical America,

And various fig-trees of Asia and America, of which, however, Ficus elastica is the only important one, being the principal source of caoutchouc in the East Indies.

In *Apocynaceæ* there is,

Urceola elastica (Roxb.) which furnishes the Borneo and Sumatra India-rubber, known in commerce as Singapore or Pulo-Penang India-rubber.

Vahea gummifera (Poir.), the source of Madagascar India-rubber; and Hancomia spinosa (Gomez.), from which I saw a large quantity collected in the interior of the Brazils.

Belonging to *Euphorbiaceæ* we have the well-known Siphonia elastica, or Hevea guyanensis, which yields the largest amount of commercial caoutchouc, known in commerce as Para Indian-rubber, from its being imported from Para, a small port situated at the mouth of the Amazon river.

This tree, which grows extensively on the plains of the Oronoco and Amazon rivers, will be one to which my remarks will be exclusively confined. Siphonia elastica, or the Syringe-tree* of

* The origin of this name is given in *L'Histoire de l'Académie Royale des Sciences*, 1751, page 18, in the following terms:—

"The Omaquas, a tribe inhabiting the borders of the Amazon river, make an extraordinary use of this exudation. They form it into pear-shaped bottles or bulbs, in the neck of which they fasten a hollow wooden tube; upon filling the bulb with water, and then pressing it with the hand, the water is forced out at the mouth of the tube, forming, in this way, a complete syringe. It is considered by these people an ordinary mark of politeness for a host to present to each of his guests one of these bottles filled with warm water, and which they do not fail to make use of before dinner. This strange custom has led the Portuguese to name the tree which produces this resin, *Pas de xiringa*, or syringe wood."

the Brazils, generally averages sixty-five to sixty-seven feet in height, frequently reaching forty to fifty feet before a single branch is given off. The diameter varies from thirty to forty inches.

These dimensions, however, are frequently met with in trees which inhabit the tropical forests, but the peculiarity of its foliage, each leaf being composed of three elongated leaflets, together with the abundance of milky juice it yields upon incision, easily distinguishes this tree from all others growing around it.

Nothing could be easier than the method of collecting and preparing caoutchouc. The workman goes early in the morning into the forest, provided with a hatchet, a calabash, and a quantity of soft clay. Arriving at the foot of a Siphonia, he fastens round its base, by means of the clay, a small glazed dish, resembling in shape a swallow's nest, and with his hatchet severs the bark immediately above the dish. The milky sap immediately exudes, and is collected in the dish below. When a sufficient number of trees have been treated in this way, the workman collects the contents of the little dishes in his calabash and returns home with his booty.

The quantity of sap yielded by one tree naturally varies, but on an average, twenty trees yield two pints; and, when well managed, the same trees will yield daily the same quantity during a period of some months.

A traveller tells me, that being on the borders of the Amazon river, he stopped a day in the cottage of a caoutchouc collector, and about mid-day he saw his host returning with a calabash, which contained eight pints of siphonia milk, a quantity sufficient for the manufacture of ten pairs of shoes. His daughters, who were less practiced than himself, had during the period collected four pints, which is the average quantity for one workman. I have mentioned shoes, because in that form, or as round and egg-shaped bottles, tubes, and sheets, the larger quantity of India-rubber is still exported from the Brazils. The bottles are made by dipping a ball of clay, fastened to the end of a stick, into the fresh juice, and immediately afterwards holding it in a thick smoke, produced by the combustion of oleaginous seeds. When the first layer has partially solidified, others are applied in the same manner, till a sufficient thickness has been obtained.

Shoes are made in the same manner, with the exception that a wooden mould, thinly coated with clay, is employed—as it admits of being withdrawn without breaking. Ten minutes is generally sufficient for a clever workman to make a pair of shoes. I must mention, however, that the effect of the smoke is to coagulate the caouchouc. The hardening is afterwards effected by exposure for some time to the sun.

Some experiments have recently been made with a view to the exportation of this substance in the liquid state, by inclosing it in hermetically sealed bottles. Upon opening these bottles, however, a solid mass of caoutchouc floating in a serous liquid, presents itself. If the milky sap, as at first extracted, be allowed to stand for some time, it separates into two portions in the same manner as milk; a substance which it closely resembles in appearance and taste. It may also be drank without any injurious effects being produced.

The most favorable period for extracting caoutchouc is the summer season, from April to November. During the wet weather the work in the forest is very difficult and unhealthy. The product also is very inferior, containing much less of its solid coagulable constituents. During the collecting season the trees have to be wounded afresh every day; it therefore becomes necessary to make the first incisions as low down as possible, because also, the old wounds in healing frequently form a sort of swelling round the part which would absorb a portion of the descending sap.

The quality of these trees varies greatly, some yielding more than others; generally, however, the more sap there has been abstracted, the more the tree seems capable of yielding. In this respect these trees resemble good cows.

The preceding facts will be sufficient to prove that the method adopted by the Africans, Indians, and South Americans for obtaining caoutchouc, is at once simple and efficacious. Every fact in the history of this substance is calculated to stimulate the activity of an intelligent explorer, and assures us of the future prosperity of one of the most interesting branches of American commerce.—*London Pharm. Journ. Sept.* 1855.

NOTE ON THE INDIA-RUBBER OF THE AMAZON.

By R. Spruce, Esq.*

The extraction of caoutchouc from the various species of *Siphonia* was, at the time of my arrival in Pará (July, 1849), a branch of industry limited to the immediate environs of that city, being carried on principally in the island of Marajó, and about the mouth of the Tocantins. The low price it fetched in the Pará market (10 milreis—£1 3*s* 4*d* the *arroba* of 32lbs.), and the great gains which those who trade in the *sertao*† except on their outlay, prevented the *sertanejos* from employing themselves in the fabrication of *seringa*;‡ to which contributed also the universal apathy and even antipathy to everything new, if it involved labor, no matter how profitable. When I ascended the Rio Negro in 1851, I pointed out to the inhabitants the abundance of *seringa*-trees they possessed in their forests, and tried to induce them to set about extracting the gum; but they shook their heads, and said it would never answer. At length the demand for India-rubber, especially from the United States, began to exceed the supply; the price consequently rose rapidly, until early in 1854 it reached the extravagant sum of 38 milreis (£4 8*s*. 8*d*.) the arroba. This woke up the people from their apathy, and the impulse, once given, extended so rapidly and widely, that nearly throughout the Amazon and its principal tributaries, the mass of the population put itself into motion to search out and fabricate *seringa*. In the province of Pará alone (which now includes a very small portion of the Amazon) it was computed that 25,000 persons were employed in that branch of industry in the year

* *Hooker's Journal of Botany and Kew Gardens Miscellany*, July, 1854, p. 193.

† The Interior,—literally, "the desert."

‡ The name usually given to India-rubber on the Amazon is "Xeringue (pronounced nearly *Sheringhy*). This is undoubtedly an Indian corruption of the Portuguese word "Seringa," a syringe or clyster-pipe, the fabrication of which was the first use to which the gum of the *Siphonia* was applied in its native country. In Lingoa Geral, *xeringue* is the common term for a liar (query, *a stretcher?*), but, as it has no affinity with any other word in the same language, it seems certain that it is of Portuguese origin. The Spaniards have adopted the term "Seringa," in which I follow them. The Indians of Venezuela call the rubber *yâpi dâpi*, or *dâpiche*.

1854. Mechanics threw aside their tools, sugar-makers deserted their *engenhos*, and Indians their *rocas;* so that sugar, rum, and even *farinha*, were not produced in sufficient quantity for the consumption of the province, the two former articles having to be imported from Maranham and Pernambuco, and the last from the river Uaupés.

The mode of obtaining the milk is almost universally by tapping. Some who began by cutting down the trees, found that in this way they obtained much less milk than by successive tappings of the same tree, besides that the work was harder, and it was necessary continually to shift their sphere of operations. I am glad, therefore, that this killing of the hen to get at the golden eggs has been abandoned.

Most *seringueiros* follow the old mode by drying the milk by smoke, applied to successive coatings on a mould. Some have filled a small square box with the milk, and allowed it to coagulate; but, as the milk does not become solid until the end of ten days or more, and the mass then requires to be cut into thin slices, and subjected to heavy pressure (such as it is difficult to obtain here), in order to free it from the water and air collected in cells within its substance, this mode is by no means popular.

It is found that the addition of a small quantity of alum accelerates the coagulation of the milk. Ammonia has a contrary effect, and is accordingly useful when the milk is required to be kept some time in a liquid state.

When the trees are flowering, nearly all the milk goes to the nourishment of the flowers, and scarcely any can be obtained from the trunk, while if a panicle be wounded the milk starts out in large drops. It is customary to leave the trees untouched for a few months in the year, from the epoch of flowering until the fruit has attained its full size. About Pará, the collection of *seringa* seems limited to the dry season—June to December. On the upper Rio Negro, the *seringa*-trees flower from November to the end of January; and when I started from San Carlos on November 23d, little milk was to be obtained.

The species from which rubber is extracted on the upper Rio Negro and lower Casiquiare are two *Siphonia lutea*, Spruce (*Journ. of Bot.*, vi., 370), and *S. brevifolia*, Spruce (3139 to Bentham); known respectively as the *long-leaved* and *short-*

leaved seringa. The former yields most milk, but neither is so productive as the *seringa* of Pará (*Siphonia Brasiliensis*, Wild.). Both are straight, tall, and not very thick trees, with smoothish thin bark, and yellow very odoriferous flowers, while the other species have mostly purplish flowers. I suppose their average height may be about 100 feet. I cut down a tree of *S. brevifolia* near San Carlos which measured 110 feet. I first saw and gathered *S. lutea* in the mouth of the Uaupés; and as I came down the Rio Negro in December, 1854, I found a *rancho* erected on the spot, and a person employed in extracting rubber from the same trees as I had taken the flowers.

Near the Barra, some milk is taken from a *Siphonia* common on the river-banks (*S. elastica*, Aubl. ?); but there is another species growing in the interior of the forest said to yield more milk. I have not seen it, and cannot say whether it is a species known to me.

The *Siphonia* most frequent about the mouths of the Tapajoz and Madeira seems to be *S. Spruceana*, Benth., but there are, no doubt, other species.

I have gathered, in all, some seven or eight species of *Siphonia* on the Amazon and Rio Negro, but it is probable that two or three times as many still remain to be discovered.

On the Uaupés, I met with two trees* of a genus apparently far removed from *Siphonia*,—possibly they are *Sapotaceæ*, for I did not analyse the flower (*Micrandra*, Benth. in *Journ. of Bot.*, vi., 371)—which yield pure rubber, and are also called by the Indians *Xeringue;* but the clustered trunks (often as many as ten from a root) and the simple (not ternate) leaves, give these trees an aspect very different from that of the *Siphoniæ*.

There are, doubtless, several other trees in the valley of the Amazon which yield rubber, but in many cases mixed with resin, which we have not here the means of separating. Such are a great many Figs and Artocarps, two families which abound towards the head-waters of the Rio Negro and Oronoco. On the Casiquiare, the Indians make white shirts of the bark of an epiphytal fig, which they call *marima blanca*, the milk of which is said to be very copious, and when dry elastic. Towards the

*No. 2427 and 2479 to Bentham.

upper mouth of the Casiquiare I saw several trees of *marima blanca*, but they were perched high up on other trees, and had no flowers or fruit. Those who have herborized among mosquitoes, ants, and wasps, will understand why I did not trouble myself to gather only a sterile branch.

In descending the Casiquiare, in January, 1853, I reached one evening a small village some distance above the outlet of Lake Vasiva—one of those *pueblos* which spring up on the banks of Rio Negro and Casiquiare, endure barely a generation, and then disappear—where I found nearly the whole population (Indians of the tribe Pacimonare) amusing themselves by a sort of football. Their balls seemed to be the inflated bladders of some large quadruped, such as the tapir; but on picking one up I found it to be India-rubber. I asked them to keep two or three balls for me when they had finished their game, and they promised to do so, but during the night they all got gloriously drunk and burst their balls. I did not see the tree from which this rubber was extracted, but from the description given me it was a true *Siphonia*, perhaps *S. lutea*.

In consequence of so many people devoting themselves to the fabrication of *seringa*, the value fell again more rapidly than it had risen, and by last advices from Pará to date of February 1, 1855, *seringa* was down at 15 to 18 milreis the arroba.

RICHARD SPRUCE.

Barra do Rio Negro, Feb. 9th, 1855.

Hooker's Journal of Botany and Pharm. Journ.

SPECIFICATION OF THE PATENT GRANTED TO JAMES A. CUTTING, OF BOSTON, IN THE UNITED STATES OF AMERICA, PHOTOGRAPHER, FOR AN IMPROVED PROCESS OF TAKING PHOTOGRAPHIC PICTURES ON GLASS, AND ALSO OF BEAUTIFYING AND PRESERVING THE SAME.—[Dated London, July 26, 1854.]

This invention consists in an improved process of taking photographic pictures upon glass, and also of beautifying and preserving the same, which process I have styled "ambrotype." My improved process has reference to the art of taking pictures photographically on a film of collodion upon the surface of a sheet of glass, the collodion being suitably prepared for the pur-

pose. By the use of the said process, the beauty and permanency of such pictures are greatly increased, and I have on this account styled the process "ambrotype," from the Greek word ambrotos, immortal.

The first part of my invention consists in the use of alcohol, for the purpose of depriving the gun-cotton, of which the collodion is made, of its moisture after it has been washed, to free it from the acids used in its manufacture.

It has been found that where gun-cotton has been exposed to the action of the atmosphere for the purpose of drying it, the sensitiveness of the collodion prepared from it is sensibly diminished. By the use of alcohol it may be deprived of its moisture after being washed, without exposure to the air, and without the consequent deterioration of its sensitiveness. This part of my process I conduct as follows:—So soon as the cotton has been sufficiently exposed to the acids and has been thoroughly washed, it is plunged into strong alcohol, which effectually deprives it of the water which it contains, without exposing it to the atmosphere for the purpose. From this alcohol it is taken immediately to the mixture in which it is dissolved for the purpose of forming the collodion. This mixture consists of ten parts of sulphuric ether and six of alcohol, or thereabouts. The collodion thus formed is allowed to remain until it has settled perfectly clear, which usually requires about twenty-four hours. It is then decanted, and to every pint is added eighty grains of iodide of potassium dissolved in alcohol. It is then well shaken, and thirty-two grains of refined gum camphor is added to each pint of the collodion, and after it has again settled it is fit for use. The object of the camphor is to increase the vigor and distinctiveness of delineation of the positive pictures, and particularly of the half tints. It also greatly increases the beauty of the picture, by giving a fineness of deposit not heretofore attained by any other means. The use of the gum camphor in the manner above described forms the second branch of my invention. The collodion is then applied to the surface of the glass in the following manner:—

The plate of glass being held horizontally, a portion of the collodion is poured upon it, and it is then inclined in different directions, so as to cause the collodion to flow over its whole sur-

face, upon which it forms a colorless transparent film; the excess of collodion is then allowed to run off, and the glass, being still held horizontally, is inclined to one side and the other, until the collodion becomes partially thickened or set. When this has taken place, and before it is dry, it is rinsed in a solution of crystallized nitrate of silver, of a strength of forty grains to the ounce of water; the film is thus impregnated with iodide of silver, and after remaining in this bath a sufficient length of time for the ether to escape from the collodion, the plate is ready to be placed in the camera. After being exposed a sufficient length of time in the camera, it is taken to a dark room, where the latent picture is developed, by the application of a solution of protosulphite of iron, acetic acid, and nitric acid, in about the following proportions:—One quart of soft water, one ounce protosulphite of iron, thirty-two drachms No. 8 acetic acid, one drachm nitric acid. These exact proportions are not rigid, but I have found them to be sufficient for the purpose of developing the picture. After this is accomplished it is washed in clean soft water, and then the remaining iodide of silver is dissolved from the collodion by a solution of hyposulphite of soda, after which the picture is entirely cleansed of the hyposulphite solution by washing as before, in soft water. The picture is then dried, either in the open air or by the aid of a gentle heat, and the process is completed.

To permanently improve the beauty of the pictures, and to deprive them of a bluish, hazy, indistinct look, is the object of my third improvement, which consists in the application of a coating of balsam of fir to the surface of the glass upon which the picture is made, the balsam being confined to the picture plate by a secondary plate of glass, which is applied to the picture plate in a manner which will now be described, and which hermetically seals up the picture and protects it from every and any injury not sufficient to fracture the glasses themselves. This part of the process will now be described.

A second plate of glass is prepared of the same size as that which carries the picture, and is thoroughly cleansed; the picture plate is then held horizontally, the picture side uppermost. The balsam is then applied in a line along one edge of the glass, and one edge of the secondary plate is then applied to the edge of the first, which contains the balsam. The two plates are then

pressed gradually together, by which the balsam is caused to flow entirely across the picture towards the opposite edge, and the air is effectually excluded from between the plates. The superabundant balsam is then removed by pressing the glasses together, and a thin coating of it only is left upon the surface of the picture. The beauty and distinctness of the pictures are greatly enhanced by the application, the finer lines as well as the dark portions and shadows being rendered far more distinct, and the most minute delineations being brought out and made visible, while the application of the second plate of glass secures the whole from the action of air, moisture, and dust.

What I claim as my invention, is,

1st. The method of depriving the gun-cotton of its moisture by the use of alcohol, whereby the sensitiveness of the collodion prepared therefrom is preserved unimpaired.

2d. The use of gum camphor in the preparation of collodion for the purpose set forth.

3d. I am aware of the previous use of balsam for the purpose of cementing together lenses, and also of securing microscopic objects, and I therefore lay claim to no such use.

But what I do claim, is, the application of the balsam to the surface of photographic pictures upon glass, in combination with the method described of protecting and securing the same by means of the additional plate of glass.—*Report of Patent Inventions, April*, 1855. *Journ. Franklin Inst., Sept.*, 1855.

IMPROVEMENTS IN THE TREATMENT OF CERTAIN BITUMINOUS MINERAL SUBSTANCES, AND IN OBTAINING PRODUCTS THEREFROM. By JAMES YOUNG, of Manchester. Patent dated October 17, 1850.

This invention consists in treating bituminous coal in such manner as to obtain therefrom an oil containing parafine (which the patentee calls parafine oil,) and from which oil parafine is obtained. The coals best fitted for this purpose are such as are usually called parrot coal, cannel coal, and gas coal, and which are much used in the manufacture of gas for the purpose of illumination, because they yield, upon distillation at a high temperature, olefiant and other highly illuminating gases in considerable

quantity ; and although some of the coals last described contain a large amount of earthy matters, those matters do not interfere materially with the performance of this process. To obtain parafine oil from coals, the following is the method of procedure :— The coals are to be broken into small pieces, and are then to be put into a common gas retort, to which is attached a worm pipe passing through a refrigerator, and kept at a temperature of about 55° Fahr. by a stream of cold water. The temperature of the refrigerator should not be made too low, lest the product of the distillation should congeal and stop up the pipe. The retort being closed in the usual manner, is then to be gradually heated up to a low red heat, at which it is to be kept until volatile products cease to come off. Care must be taken to keep the temperature of the retort from rising above that of a low red heat, so as to prevent as much as possible the desired products of the process being converted into permanent gas. The coke or residue may then be withdrawn from the retort, which, being allowed to cool down below a visible red heat (to prevent waste of the fresh material to be introduced,) may be again charged with a quantity of coals to be treated in the like manner. The crude parafine oil distilled or driven off from the coals as a vapor, will be condensed into a liquid in passing through the cold worm-pipe, from which it will fall into a vessel which must be provided to receive it. Instead of obtaining the whole of the parafine oil by distillation, a portion of it may, in some cases, if thought desirable, be run from the retort (through an opening and a pipe provided in the anterior and lower part of the retort for that purpose) after it has separated from the coal and assumed a liquid form. The patentee prefers, however, in every case to distil or drive off the whole of the parafine oil to be obtained from the coal. The production of the desired products from a charge of coals in a retort will be known to be finished by the liquid ceasing to run from the worm. The crude product of this process is an oil containing parafine, which the patentee calls parafine oil. This oil will sometimes, upon cooling to a temperature of about 40° Fahr., deposit parafine. Other arrangements of apparatus may be used for subjecting coals to the process for obtaining parafine oil therefrom, but that above mentioned is preferred as being well known and easily managed. But in

order to obtain the largest quantity of crude parafine oil from coals by means of this process, and produce the smallest quantity of permanent gas by the action of the heat employed, whatever may be the apparatus used, care must be taken to heat the coals gradually, and to apply the lowest temperature necessary to complete the operation. During the distillation or driving off, a permanent gas will be produced, and this gas may either be collected or suffered to escape, as may be thought expedient. The crude oil obtained, as already described, is purified in the following manner:—I put the oil into a cistern, and heat it (by a steam pipe or other means) to a temperature of about 150° Fahr. When thus treated, water and undissolved impurities contained in the oil will separate more readily from it than when cold, and the oil being left in a state of rest and kept warm for about a day, many of those impurities will fall to the bottom of the cistern, and the oil may then be run off into another vessel, leaving the residuum behind. For distilling the oil the inventor prefers to use an iron still with a worm-pipe connected to it, passing through a refrigeratory apparatus, which is kept at or about the temperature of 55° Fahr., as already mentioned. The still is heated by a fire underneath it, which is kept up until the whole of the oil has been distilled over, and it will then be found that the still contains some dry carbonaceous residuum, which should be taken out before the still is again used. The oil is to be run from the condensing apparatus as it distils over into a leaden vessel, where, to each 100 gallons there are gradually added 10 gallons of the oil of vitriol of commerce. After this mixture has been well stirred for about an hour, it is to remain at rest for about twelve hours, so that the oil of vitriol and the impurities with which it has combined may settle at the bottom. The supernatant oil is then drawn off into anir on vessel, and four gallons of a solution of caustic soda, of a specific gravity 1.300 (water being 1.000,) added to each 100 gallons. The soda and oil are stirred together for about an hour, so as to neutralize any acid which may remain in the oil, and also take up any impurities capable of combining with it, after which the contents of the vessel are allowed to remain at rest for about six or eight hours, so that the solution of soda may subside, and then the supernatant oil is to be drawn off, and again distilled in the same

manner as already described. Parafine oil obtained from the last mentioned distillation contains a fluid more volatile than parafine, a considerable portion of which may be separated from the oil and obtained in a separate state as follows:—The oil is placed in an iron still connected with a worm-pipe passing through a refrigeratory apparatus, and half its bulk of water being added, the contents of the still are boiled for about twelve hours, adding water from time to time, so as to keep about the same proportions of oil and water in the still.

The volatile fluid will pas over along with steam, and be condensed in the worm-pipe by the refrigeratory apparatus. This fluid will be clear and transparent, and as it is lighter than water, it separates, on standing, from the water with which it will be mixed as it leaves the worm-pipe of the still. This fluid may be burnt for the purpose of illumination, or applied to any other useful purpose to which it may be applicable. The last-named process will separate the greater portion of the volatile fluid from the oil, but a larger quantity may be separated by prolonging the operation. The oil left in the still after the completion of the process is then to be carefully separated from all the remaining water (upon which it will float) and conveyed into a leaden vessel, where two gallons of oil of vitriol are to be added to each 100 gallons. This mixture is to be well stirred for six or eight hours, after which it is allowed to stand undisturbed for twenty-four hours, in order that the vitriol may settle to the bottom of the leaden vessel, carrying with it all impurities with which it has combined. The supernatant oil is now to be drawn off into another vessel, and to each 100 gallons there is added 28 lbs. of chalk, ground up with a little water into a tin paste. The oil and chalk are to be well agitated until the oil becomes entirely freed from any trace of sulphurous acid, which may easily be known by heating a little of it in a glass retort, and testing its vapors by moistened blue litmus paper. If the vapors change the color of the litmus paper to red, the oil must be treated with more chalk. This oil is to be kept warm—say at 100° Fahr.—in any convenient vessel, for about a week, to allow impurities to settle, and it is then fit to be used for lubricating purposes, either by itself or mixed with an animal or vegetable oil, or it may be burnt by itself in Argand lamps for the purpose of illu-

mination. To extract parafine from the purified parafine oil, obtained in the manner described, the oil is to be cooled to a low temperature—say to 30° or 40° Fahr.; and the lower the temperature, the larger will be the quantity of parafine separated from the oil. In this way parafine is made to crystallize, when it may be separated from the oil by filtration through woolen or other cloths, and then sqeezing it in a powerful press, by which means it will be made sufficiently pure to be employed for lubricating and some other useful purposes. But the parafine may be further purified, if required, by treating it several times, at a temperature of about 160° Fahr., alternately with its own bulk of oil of vitriol and with a similar quantity of a solution of caustic soda (of the specific gravity already mentioned) until the parafine ceases to render the oil of vitriol black. It is then to be washed in a weak solution of soda, and lastly with boiling water, until the water ceases to change the color of red litmus paper. Another method adopted to obtain parafine from parafine oil is, to put the oil into a still, and distil over one-half or more of its contents. The portion then remaining will contain a much larger proportion of parafine than the parafine oil at first put into the still contained; this residue being then distilled over into a separate vessel, and allowed to cool. Parafine may be separated by filtration and squeezing in cloths, and also purified by treatment with oil of vitriol and soda, as before described. Parafine oil from which parafine has been separated, as above described, still contains parafine in solution, and is suitable for lubricating or lighting purposes.—*Mechanics' Magazine, April*, 1851, *and Jour. Franklin Inst.*

ANTIDOTE TO STRYCHNIA.

(Extract of a letter from Wm. Nick Pindell, M. D., of St. Michael's, Talbot County, Maryland, to the Editor.)

The object of this letter is merely to state facts, and through the Journal to have the facts made known, at the same time to obtain through your influence further experiments, either to satisfy or dispel from the minds of some that there is always at hand a "safe" and "sufficient" antidote to the poisonous "strychnia." Will you have the "antidote" tested?

I will now state the experiments of mine own, and the occasion of their having been made.

There were some three or four dogs, nightly frequenting my premises, committing devastations upon anything left exposed. They had continued to worry me until forbearance ceased to be a virtue, and sentence was pronounced: "They shall die." A piece of meat containing "1 grain of strychnia," was placed close beside a jar containing refuse "lard." I sat, watched a dog take, eat the meat, and commence upon the lard. My watch was beside me, and I expected the dog to die; five, ten, fifteen, twenty, thirty minutes passed; still, he did not die. That night, the "lard" having all been eaten, three pieces of meat, upon which the poison had been placed, were dropped in separate places. Next morning, I found three dogs dead. I, that day, tried dog No. 1 with two more grains without the lard, and, in ten minutes, he was dead. There have been nine instances in which the poison was given, and antidote used; in neither one did the dog die. In eleven, without the lard, they all died. The half grain was sufficient to kill. Three grains failed when the antidote was used.

The test has been also used upon cats with the same result. A difference in time of death is made by simply putting it upon *fat* instead of *lean* meat; the latter being over some three minutes sooner than the former.

It is proper to state, that the lard was given in not less than "half pints" up to the one and a half.

What is the action of the lard?

Will you, doctor, have this matter tested fully, and then report through the Journal? The article of strychnia, wich I have used, was obtained from my chemists in Baltimore, Coleman & Rogers. I do not know, or am unable to account for the action of the lard. I may now state that I have used the camphor and "failed."

If it be necessary, it will afford me pleasure to report at length of the trials, and then have the public to know of the agent, if it should meet your wishes.—*Amer. Jour. Med. Sci.*

*[Note.—In repeating these experiments, should they be corroborated, it would be well to try if olive, and other bland fixed oils, will act in the same manner. It will be much more easily administered. The subject is worthy of attention. One condition of success may be that the poison and antidote shall be taken at the same time, as in the instances quoted such was the

fact. In a recent instance of poisoning by strychnia in New York, a gentleman took about two grains of strychnia in mistake for quinine, mixed with Dover's Powder, and three quarters of an hour elapsed before he suspected the mistake. The remedies administered at once were tannin and emetics of sulph. zinc and copper, the tetanic symptoms having set in before the remedies were given, his jaws being kept apart by wooden wedges. Neither of these agents caused emetics until a current of magnetic electricity was applied in the gastic region. The patient recovered.—Editor Amer. Jour. Pharm.]

ASPARAGUS AS A DIURETIC.

By S. J. Jeaffreson, M. D.

I have used a tincture of asparagus as a diuretic for sixteen or seventeen years, with increasing confidence in its usefulness and efficacy. I have thought it worth the notice of our Association at this particular period, because the time is now approaching at which any gentleman may easily make the experiment of its use. I use the following formula: Take of dried tops of asparagus, five ounces; proof spirit, two pints. Take of fresh tops of asparagus, five pounds. Bruise and press out the juice; evaporate at a low temperature till reduced to one pint, and strain. Lastly, add a pint of rectified spirit. Mr. Baly, chemist, of Warwick, can furnish any person desirous of trying the tincture with a limited supply, and will be happy to make any quantity that may be ordered of him.

The peculiar odor communicated by this substance to the urine, in a remarkably short time, is perhaps as familiar to the laity as the profession. It was this fact first led me to think that asparagus might constitute a valuable adjunct to our list of diuretics; if not indeed by virtue of any specific diuretic quality it possessed, at least by its power of directing other agents of acknowledged diuretic power to the kidneys.

On referring to such authorities as fell in my way, I found that, whilst some mentioned asparagus as a diuretic in general terms, without any specific reference to its medicinal administration, others omitted entirely to notice this plant, and some others denied its diuretic properties entirely. It appeared to me evident that any deductions drawn on this subject had been founded entirely on its effects as an article of food, and not upon any

direct experiments of its medicinal administration. The fallacy and uselessness of such deductions is sufficiently apparent; upon generalizations so vague, we might have discarded numerous of our best remedies as deleterious, innocuous, or useless.

Suffice it to say that, after some sixteen years' experience, I have found the tincture of asparagus a useful adjunct to our diuretic remedies. I many cases, I have found it possessing direct diuretic properties when taken alone in water; but, in still more instances, I have found it most useful in promoting the the diuretic properties of other drugs, as I conceive, by directing them at once to the kidneys. I have repeatedly in my own practice, as also in consultation, simply added from half a drachm to two drachms of tincture of asparagus to each dose of an unsuccessful diuretic, and found that copious diuresis was the result.

Mr. Baly informs me that the exact loss by weight in drying the plant is eleven parts out of twelve; in other words, that twelve parts by weight of the fresh shoots are only equal to one part dried. I have not tried the infusion of the dry shoots, but should think them worthy of trial.

The tincture of asparagus presents the advantage of being capable of combination, so far as I know by experience, with every diuretic substance in use, be it from the animal, the vegetable, or the mineral kingdom.—*Assoc. Med. Journ.*, May 11, 1855.

Varieties.

On Perfumery. By Septimus Piesse.

(Continued from page 471.)

Perfumed Soap.

The word soap, or sope, from the Greek *sapo*, first occurs in the books of Pliny and Galen, and is, according to Dr. Gregory, derived from the German word *sepe*. Pliny informs us that soap was first discovered by the Gauls, that it was composed of tallow and ashes, and that the German soap was reckoned the best. According to Sismondi, the French historian, a soap-maker was included in the retinue of Charlemagne.

At Pompeii (overwhelmed by an eruption of Vesuvius, A. D. 79,) a soap-boiler's shop with soap in it was discovered during some excavations made there not many years ago. (*Starks' Letters from Italy.*)

From these statements it is evident that the manufacture of soap is of very ancient origin; indeed, Jeremiah figuratively mentions it—"For though thou wash thee with natron and take thee much sope, yet thine iniquity is marked before me." (Jer. ii. 22.)

It would be out of place here to enter into the details of soap-making, because perfumers do not manufacture that substance, but are merely "re-melters," to use a trade term. The dyer purchases his dye stuffs from the drysalters already fabricated, and are merely modified under his hands to the various purposes he requires; so with the perfumer, he purchases the various soaps in their raw state from the soap makers, these he mixes by re-melting scents and colors according to the article to be produced.

The primary soaps are divided into hard and soft soaps: the hard soaps contain soda as the base; those which are soft are prepared with potash. These are again divisible into varieties, according to the fatty matter employed in their manufacture, also according to the proportion of alkali. The most important of these to the perfumer is what is termed curd soap, as it forms the basis of all the highly scented soaps. [Curd Soap is a nearly neutral soap, of pure soda and fine tallow.]

Oil Soap, as made in England, is an uncolored combination of olive oil and soda, hard, close grain, and contains but little water in combination.

Castile Soap, as imported from Spain, is a similar combination, but is colored by protosulphate of iron. The solution of the salt being added to the soap after it is manufactured, from the presence of alkali, decomposition of the salt takes place, and protoxide of iron is diffused through the soap of its well-known black color, giving the familiar marbled appearance to it. When the soap is cut up into bars and exposed to the air, the protoxide passes by absorption of oxygen into peroxide; hence, a section of a bar of Castile soap shows the outer edge red marbled, while the interior is black marbled. Some Castile soap is not artificially colored, but a similar appearance is produced by the use of a barilla or soda containing sulphuret of the alkaline base, and at other times from the presence of an iron salt.

Marine Soap is a cocoa-nut oil soap, of soda, containing a great excess of alkali, and much water combination.

Yellow Soap is a soda soap, of tallow, rosin, lard, &c., &c.

Palm Soap is a soda soap of palm oil, retaining the peculiar odor and color of the oil unchanged. The odoriferous principle of palm oil resembling that from orris-root, can be dissolved out of it by tincturation with alcohol; like ottos generally, it remains intact in the presence of an alkali—hence, soap made of palm oil retains the odor of the oil.

The public require a soap that will not shrink and change shape after they purchase it. It must make a profuse lather during the act of washing. It must not leave the skin rough after using it. It must be either quite inodorous or have a pleasant aroma. None of the above soaps possess all these

qualities in union, and, therefore, to produce such an article is the object of the perfumer in his remelting process.

Prior to the removal of the excise duty upon soap in last year, it was a commercial impossibility for a perfumer to *manufacture* soap, because the law did not allow less than one ton of soap to be made at a time. This law, which, with certain modifications, had been in force since the reign of Charles I., confined the actual manufacture of that article into the hands of a few capitalists. Such law, however, was but of little importance to the perfumer, as a soap-boiling plant and apparatus is not very compatible with a laboratory of flowers; yet, in some exceptional instances, these excise regulations interfered with him; such, for instance, as that in making soft soap of lard and potash; known, when perfumed, as *Crême d' Amande;* or unscented, as Saponaceous Cream, which has, in consequence of that law, been entirely thrown into the hands of our continental neighbors.

Fig Soft Soap is a combination of oils, principally olive oil of the commonest kind, with potash.

Naples Soft Soap is a fish oil (mixed with Lucca oil) and potash, colored brown for the London shavers, retaining, when pure, its unsophisticated "fishy" odor.

The above soaps constitute the real body or base of all the fancy scented soaps as made by the perfumers, which are mixed and remelted according to the following formula:—

The remelting process is exceedingly simple. The bar soap is first cut up into thin slabs, by pressing them against a wire fixed upon the working bench. This cutting wire (piano-wire is the kind) is made taut upon the bench by being attached to two screws. These screws regulate the height of the wire from the bench, and hence the thickness of the slabs from the bars. The soap is cut up into thin slabs, because it would be next to impossible to melt a bar whole, on account of soap being one of the worst conductors of heat.

The melting pan is an iron vessel, of various sizes, capable of holding 28 lbs. to 3 cwt., heated by a steam jacket, or by a water bath. The soap is put into the pan by degrees, or what is in the vernacular called "rounds," that is, the thin slabs are placed perpendicularly all round the side of the pan; a few ounces of water are at the same time introduced, the steam of which assists the melting. The pan being covered up, in about half an hour the soap will have "run down." Another round is then introduced, and so continued every half-hour until the whole "melting" is finished. The more water a soap contains, the easier it is melted; hence a round of marine soap, or of new yellow soap, will run down in half the time that it requires for old soap.

When different soaps are being remelted to form one kind when finished, the various sorts are to be inserted into the pan in alternate rounds, but each round must consist only of one kind to ensure uniformity of condition. As the soap melts, in order to mix it, and to break up lumps, &c., it is from time to time "*crutched.*" The "crutch" is an instrument or tool for stirring up

the soap; its name is indicative of its form, a long handle with a short cross —an inverted ⊥, curved to fit the curve of the pan. When the soaps are all melted, it is then colored, if so required, and then the perfume is added, the whole being thoroughly incorporated with the crutch.

The soap is then turned into the "frame." The frame is a box made in sections, in order that it can be taken to pieces, so that the soap can be cut up when cold; the sections or "lifts" are frequently made of the width of the intended bar of soap.

Two or three days after the soap has been in the frame, it is cool enough to cut into slabs of the size of the lifts or sections of the frame; these slabs are set up edgeways to cool for a day or two more; it is then barred by means of a wire. The lifts of the frame regulate the widths of the bars; the gauge regulates their breadth. The density of the soap being pretty well known, the gauges are made so that the soap cutter can cut up the bars either into fours, sixes, or eights; that is, either into squares of four, six, or eight to the pound weight. Latterly, various mechanical arrangements have been introduced for soap cutting, which in very large establishments, such as those at Marseilles in France, are great economizers of labor, but in England the "wire" is still used.

For making tablet shapes the soap is first cut into squares, and is then put into a mould, and finally under a press—a modification of an ordinary die or coin press. Balls are cut by hand, with the aid of a little tool called a "scoop," made of brass or ivory, being, in fact, a ring-shaped knife. Balls are also made in the press with a mould of appropriate form. The grotesque form and fruit shape are also obtained by the press and appropriate moulds. The fruit-shaped soaps, after leaving the mould, are dipped into melted wax, and are then colored according to artificial fruit-makers' rules.

The variegated colored soaps are produced by adding the various colors, such as smalt and vermillion, previously mixed with water, to the soap in a melted state; these colors are not crutched in, hence the streaky appearance or party color of the soap.

Almond Soap.

This soap, by some persons, "supposed" to be made of "sweet almond oil," and by others to be a mystic combination of sweet and bitter almonds, is in reality constituted thus:—

Finest curd soap	1 cwt.	Otto of almonds	1½ lb.
" oil soap	14 lb.	" cloves	½ lb.
" marine	14 lb.	" carraway	½ lb.

By the time that half the curd soap is melted, the marine soap is to be added; when this is well crutched, then add the oil soap, and finish with the remaining curd. When the whole is well melted, and just before turning it into the frame, crutch in the mixed perfume.

Camphor Soap.

Curd soap	28 lb.	Camphor	1½ lb.
Otto of rosemary	1½ lb.		

Reduce the camphor to powder by rubbing it in a mortar with the addition of an ounce or more of almond oil, then sift it. When the soap is melted and ready to turn out, add the camphor and rosemary, using the crutch for mixing.

Honey Soap.

Best yellow soap	1 cwt.
Fig soft soap	14 lb.
Otto of citronella	1½ lb.

White Windsor Soap.

Curd soap	1 cwt.
Marine soap	21 lb.
Oil soap	14 lb.
Otto of carraway	1½ lb.
" Thyme, " Rosemary	½ lb. of each
" Cassia, " Cloves	¼ lb. of each

Fuller's Earth Soap.

Curd soap	10½ lb.
Marine soap	3½ lb.
Fuller's earth (baked	14 lb.
Otto of French lavender	2 oz.
" origanum	1 oz.

Brown Windsor Soap.

Curd soap	¾ cwt.
Marine soap	¼ cwt.
Yellow soap	¼ cwt.
Oil soap	¼ cwt.
Brown coloring (caramel)	½ pint.
Otto of carraway, " cloves, " thyme, " cassia, " petit grain, " French lavender	each ¼ lb.

Sand Soap.

Curd soap	7 lb.
Marine soap	7 lb.
Sifted silver sand	28 lb.
Otto of thyme, " cassia, " carraway, " French lavender	each 2 oz.

The above forms are indicative of the method for perfuming soaps while hot or melted.

All the very highly scented soaps are, however, perfumed cold, the explanation of which must be reserved for our next publication.

The variously-named soaps—from the sublime "Sultana" to the ridiculous "Turtle's Marrow"—we cannot, of course, be expected to notice; the reader may, however, rest himself assured that he has lost nothing by their omission.

The receipts given produce only the finest quality of the article named. Where cheap soaps are required, not much acumen is necessary to discern that by omitting the expensive perfumes, or lessening the quantity, the object desired is attained. Still lower qualities of scented soap are made by using greater proportions of yellow soap, and employing a very common curd, omitting the oil soap altogether.

In the last number of the "Annals" the methods explained of scenting soap involved the necessity of melting it. The high temperature of the soap under these circumstances involves the obvious loss of a great deal of perfume by evaporation. With very highly-scented soaps, and with perfume of an expensive character, the loss of ottos is too great to be borne in a commercial sense; hence the adoption of the plan of

Scenting Soaps Cold.

This method is exceedingly convenient and economical for scenting small batches, involving merely mechanical labor, the tools required being simply an ordinary carpenter's plane, and a good marble mortar, and lignum vitæ pestle.

The woodwork of the plane must be fashioned at each end, so that when placed over the mortar, it remains firm and not easily moved by the parallel pressure of the soap against its projecting blade.

To commence operations we take first 7 lbs., 14 lbs., or 21 lbs., of the bars of the soap that it is intended to perfume. The plane is now laid upside down across the top of the mortar.

Things being thus arranged, the whole of the soap is to be pushed across the plane until it is all reduced into fine shavings. Like the French charbonnier, who does not saw the wood, but woods the saw, so it will be perceived that in this process we do not plane the soap, but that we soap the plane, the shavings of which fall lightly into the mortar as quickly as produced.

Soap, as generally received from the maker, is in proper condition for thus working; but if it has been in stock any time it becomes too hard, and must have from one to three ounces of distilled water sprinkled in the shaving for every pound of soap employed, and must lay for at least twenty-four hours to be absorbed before the perfume is added.

When it is determined what size the cakes of soap are to be, what they are to sell for, and what it is intended they should cost, then the maker can measure out his perfume.

In a general way, soaps scented in this way retail from 4*s.* to 10*s.* per pound—bearing about 100 per cent. profit, which is not too much, considering their limited sale. The soap being in a proper physical condition with regard to moisture, &c., is now to have the perfume well stirred into it. The pestle is then set to work for the process of incorporation. After a couple of hours of "warm exercise" the soap is generally expected to be free from streaks, and to be one uniform consistency.

For perfuming soap in large portions by the cold process, instead of using the pestle and mortar as as an incorporator, it is more convenient and economical to employ a mill similar in construction to a cake chocolate-mill, or a flake cocoa-mill; any mechanical apparatus that answers for mixing paste and crushing lumps will serve pretty well for blending soap together.

Before going into the mill, the soap is to be reduced to shavings and have the scent and color stirred in; after leaving it the flakes or ribbonds of soap are to be finally bound together by the pestle and mortar into one solid mass; it is then weighed out in quantities for the tablets required, and moulded by the hand into egg-shaped masses, each piece being left in this condition, separately laid in rows on a sheet of white paper, dries sufficiently in a day or so to be fit for the press; the press is the same as that previously mentioned. It is usual before placing the cakes of soap in the press to dust them over with a little starch powder, or else to very slightly oil the mould; either of these plans prevents the soap from adhering to the letters or embossed work of the mould—a condition essential for turning out a clean well-struck tablet.

The body of all the fine soaps mentioned below should consist of the finest

and whitest curd soap, or of a soap previously melted and colored to the required shade, thus:—

Rose-colored Soap is curd soap stained with vermillion, ground in water, thoroughly incorporated when the soap is melted and not very hot.

Green Soap is a mixture of palm oil soap and curd soap, to which is added powdered smalt ground with water.

Blue Soap, curd soap colored with smalt.

Brown Soap, curd soap with caramel—*i. e.*, burnt sugar.

The intensity of color varies, of course, with the quantity of coloring.

Some kinds of soap receive or become colored to a sufficient extent by the mere addition of the ottos used for scenting, such as "spermaceti soap," "lemon soap," &c., which become of a beautiful pale lemon color by the mere mixing of the perfume with the curd soap.

Otto of Rose Soap.

(*To retail* 10*s. per pound.*)

Curd soap (previously colored with vermillion)	4½ lb.	Spirituous extract of musk	2 oz.
Otto of rose	1 oz.	Otto of santal	½ oz.
		" geranium	½ oz.

Mix the perfumes, stir them in the soap shavings, and beat together.

Tonquin Musk Soap.

Pale brown colored curd soap	5 lb.	Otto of bergamot	1 oz.
Grain musk	½ oz.		

Rub the musk with the bergamot, then add it to the soap and beat up.

Orange Flower Soap.

Curd soap	7 lb.
Otto of neroly	3½ oz

Santal Wood Soap.

Curd soap	7 lb.
Otto of santal	7 oz.
" bergamot	2 oz.

Spermaceti Soap.

Curd soap	14 lb.
Otto of bergamot	2½ lb.
" lemon	½ lb.

Patchouly Soap.

Curd soap	4½ lb.
Otto of patchouly	1 oz.
" santal, " vitivert, of each	½ oz.

Frangipanne Soap.

Curd soap (previously colored light brown)	7 lb.
Civet	½ oz.
Otto of neroly	½ oz.
" santal	1½ oz.
" rose	½ oz.
" vitivert	½ oz.

Rub the civet with the various ottos, and beat in the usual manner.

Citron Soap.

Curd soap	6 lb.
Otto of citron	¾ lb.
" verbena (lemon grass)	½ oz.
" bergamot	4 oz.
" lemon	2 oz.

One of the best of fancy soaps that is made.

Saponaceous Cream of Almonds.

The preparation sold under this title is a potash soft soap of lard. It has a beautiful pearly appearance, and has met with extensive demand as a shaving soap, being also used in the manufacture of Emulsines. It is an article of no inconsiderable consumption by the perfumer; it is made thus:—

Clarified lard	7 lb.	Rectified spirit	3 oz.
Potash of ley, (containing 26 per cent. of caustic potash)	3½ lb.	Otto of almonds	2 dr.

Manipulation.—Melt the lard in a porcelain vessel by a salt water bath, or

by a steam heat under 15 lb. pressure; then run in the ley *very slowly*, agitating the whole time; when about half the ley is in, the mixture begins to curdle; it will, however, become so firm that it cannot be stirred. The crême is then finished, but it is not pearly; it will, however, assume that appearance by long trituration in a mortar, gradually adding the alcohol, in which has been dissolved the perfume.

Soap Powders.

These preparations are sold sometimes as a dentifrice and at others for shaving; they are made by reducing the soap into shavings by a plane, then thoroughly drying them in a warm situation, afterwards grinding in a mill, then perfuming with any otto desired.

Rypophagon Soap.

Best yellow soap } equal parts melted together.
Fig soft soap }

Perfumed with anise and citronella.

Ambrosial Cream.

Color the grease very strongly with alkanet root, then proceed as for the manufacture of saponaceous cream.

Perfume . . . . . Oringeat.

Transparent Soft Soap.

Solution caustic potash (*Lond. Ph.*) . . . . . 6 lb.	Olive oil . . . . . 1 lb.
	Perfume to taste.

Before commencing to make the soap, reduce the potash ley to one-half its bulk by continued boiling. Now proceed as for the manufacture of saponaceous cream. After standing a few days, pour off the waste liquor.

Transparent Hard Soap.

Reduce the soap to shaving, and dry them as much as possible, then dissolve in alcohol, using as little spirit as will effect the solution, then color and perfume as desired, and cast the product in appropriate moulds; finally dry in a warm situation.

Until the Legislature allows spirit to be used for manfacturing purposes free of duty, we cannot compete with our neighbors in this article.

Tamarinds Grown among us.—The New England Farmer says the tamarind has been grown in Virginia from seeds, and is highly spoken of as promising to be a valuable acquisition to our fruit trees, especially on the prairie lands of the West. Its growth is perfectly free from blight and from the depredations of insects. Last season the trees in Virginia produced fruit as good as the imported.—*Med. Counsellor.*

Addition of tannate of Lead to Adhesive Plaster. M. Herpin states that his own experience teaches him that Baynton's treatment, by strapping, may be extended to every breach of surface, whether resulting from wound or ulcer; and the only inconvenience he has found attending it is, the pro-

duction of eczematous eruptions, or vesications in irritable skins. After having tried many means of obviating this, he remembered the great advantage that accrued from the treatment of bed-sores, by means of plasters, powdered with the *tannate of lead*. He caused some of this substance to be combined with adhesive plaster, which henceforth produced no irritation. As the addition of the tannate diminishes the adhesiveness, the proportion may vary accordingly, as this quality is desired or not. It is retained when 1-20th of the tannate is added, and when not much required the proportion may be raised to 1-12th.—*Med. Times and Gaz.*, April 7.

Minutes of the College.

At a stated meeting of the College held at the Hall, September 24th, 1855. Vice President S. F. Troth in the chair. The minutes of the last stated meeting were adopted. The minutes of the Board of Trustees were read by A. B. Taylor, its Secretary. They inform that Lewis M. Emanuel and Herman Leuchsenring have been duly elected resident members.

The following Report was read and accepted:—

To the Philadelphia College of Pharmacy.

The Delegates appointed to attend the meeting of the American Pharmaceutical Association, held at New York, on the 11th, 12th and 13th of the present month, report, that previous to the time of meeting, Alfred B. Taylor, one of their number, being unable to leave home, resigned in favor of Samuel S. Garrigues. Henry C. Blair, who had made arrangements to be present, was prevented from accomplishing his will by indisposition.

At the appointed time the meeting was held in the Hall of the New York Medical College, provided for the occasion by the N. Y. College of Pharmacy, and was attended by delegates from the Colleges of Pharmacy at Boston, New York, Philadelphia, Baltimore, and Cincinnati, and from the Memphis (Tenn.) Pharmaceutical Association, and by gentlemen from Maine, Vermont, Michigan, New Jersey, Massachusetts, New York and Louisiana not delegated. The permanent officers of the Association elected on the occasion are—*President*, John Meakim, of New York; *Vice-Presidents*, C. B. Guthrie, of Memphis, Tennessee; Charles Ellis, of Philadelphia, and Henry F. Fish, of Waterbury, Connecticut. *Treasurer*, James S. Aspinwall, of New York. *Recording Secretary*, W. J. M. Gordon, of Cincinnati. *Corresponding Secretary*, W. Procter, Jr., of Philadelphia; and *Executive Committee*, G. D. Coggeshall, of New York, A. J. Matthews, of Buffalo, and W Procter, Jr., of Philadelphia.

The principal subjects that engaged the attention of the meeting were, the Drug Law and its working, Home Adulteration, Legislation in reference to Poisons, Modification of the Constitution, etc. Several essays were read, one of which, on the Wine Culture of the Ohio Valley, possessed more than ordinary interest. As a full abstract of the Proceedings will be published in the November number of our Journal, the Committee deem it unnecessary to go further into detail in this report than to say, that the meeting was marked with

good feeling, and that the Association adjourned to meet in Baltimore on the 2d Tuesday of September, 1856.

WILLIAM PROCTER, JR., CHARLES ELLIS,
EDWARD PARRISH, SAMUEL S. GARRIGUES.

The Committee on Latin Labels made a verbal report, that the labels authorized to be printed by the College at its last meeting, were now being executed to satisfaction.

The Committee appointed to act in conjunction with the Hall Committee in regard to the repairs to the building, not having found it advisable to proceed with the undertaking, the following was offered by Prof. Bridges and adopted:—

Whereas, The Committee on Repairs have reported, that they can at present use only part of the amount placed at their disposal at the last meeting, therefore,

Resolved, That the Sinking Fund Committee be authorized to purchase two shares of the College Loan.

The Corresponding Secretary introduced and read letters from Michael Donovan, dated Dublin, March 23d, acknowledging the receipt of his Certificate of Honorary membership, also one from Jacob Bell, Esq., dated London, June 13th, in answer to his notification of election to Honorary membership, also one of similar import from Professor T. Redwood, dated London, July 3d, 1855.

On motion of Prof. Thomas, the following was adopted:—

Resolved, That a Committee of three be appointed to report annually the deaths of members of the College, with such biographical notices as may be appropriate. E. Parrish, W. Procter, Jr., and H. C. Blair, were appointed said Committee.

The subject of the republication of the Constitution and By-Laws of the College being introduced, it was moved to authorize a Committee to publish them as they stand; this motion was not adopted, and the following offered by Prof. Procter as a substitute, was unanimously approved:—

Resolved, That a new edition of the Constitution and By-Laws be printed, and in as much as several of the present By-Laws are obsolete and inoperative, that a Committee be instructed to report to an adjourned meeting, to be held on the 26th of November, such alterations as they may think best, together with all alterations and additions adopted since the last edition was published, the whole to be compiled and prepared for publication,

S. F. Troth, E. Parrish, and A. B. Taylor, were appointed said Committee.

The semi-annual election for eight Trustees was held, and resulted in the choice of the following:—

T. P. James,	W. J. Jenks,	A. B. Taylor,	C. Bullock,
H. C. Blair,	J. L. Smith,	E. T. Ellis.	S. S. Garrigues.

Then adjourned.

EDWARD PARRISH, *Secretary.*

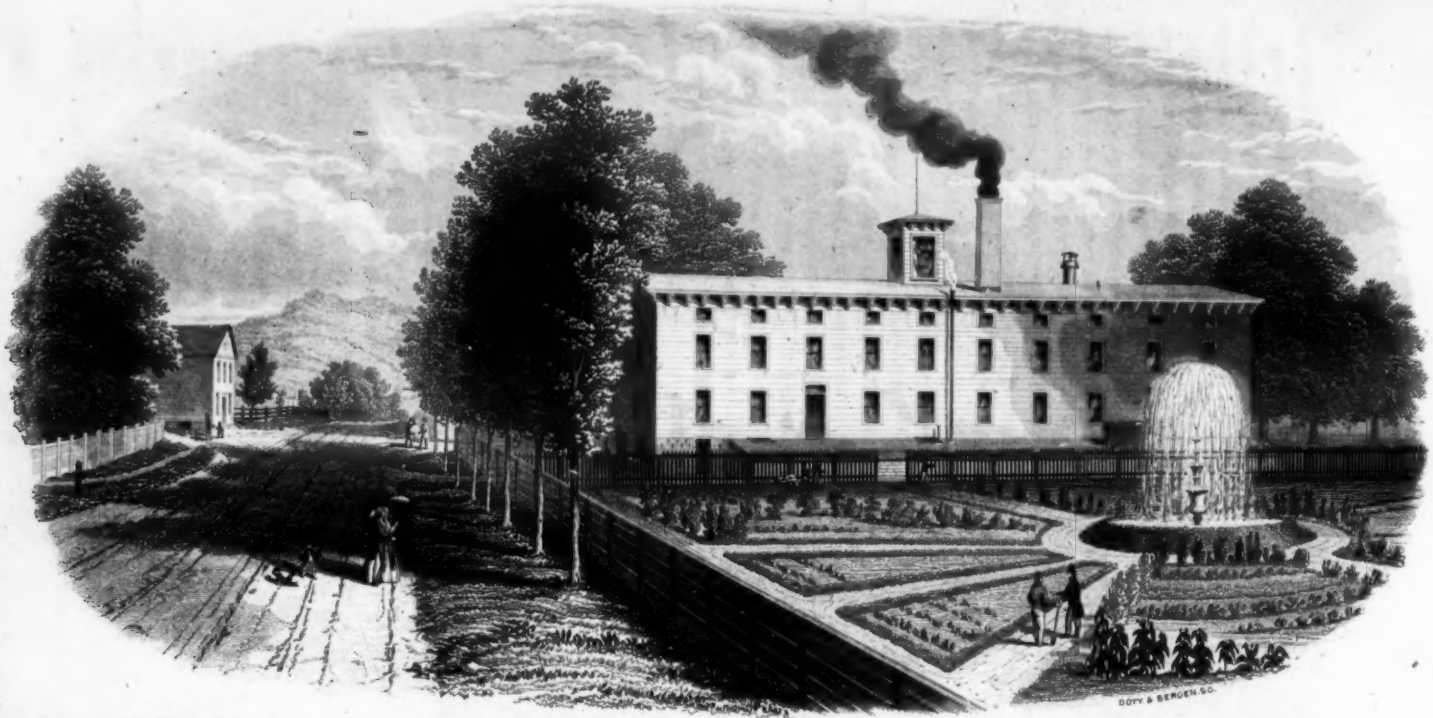
Editorial Department.

American Pharmaceutical Association.—Our readers will find at page 481 an account of the last meeting of the Association. We regret that so little zeal was manifested by the brethren in not making it convenient to attend the sittings. To remedy this apathy, it will be necessary to annually appoint a committee to report on the best means of applying pharmaceutical knowledge to the production of wealth, which, if duly announced, we doubt not, would bring a numerous attendance, at least of listeners. The strangers present owe their New York friends many thanks for the very elegant supper provided on Wednesday evening, the 12th of September, at the Collamore House, which was honored by several prominent members of the medical profession, and enlivened by Dr. Smith of the press. The official Proceedings of the Association will soon be published by the Chairman of the Executive Committee, George D. Coggeshall, Esq., at New York.

The Valley of New Lebanon (N. Y.) as a source of Medicinal plants.—A few days previous to the meeting of the American Pharmaceutical Association, having determined to take a little relaxation, we directed our course up the Hudson, towards the verdant hills of Columbia county in the Empire State, where, beautifully located in the centre of a rich and productive valley, lies the village of New Lebanon. All the way from Hudson the surface is deeply indented with vallies, and the intervening hills gradually increase in volume as you proceed eastward, until they join those of the county of Berkshire, in western Massachusetts. The Lebanon valley, at the point occupied by the village, has a somewhat triangular shape, the eastern angle being the location of the far famed "Lebanon Springs," whilst on the western exposure of the eastern range of hills, on a natural terrace, rise the plain and substantial buildings of the people called Shakers, which completely overlook the village at the height of two hundred feet above it, distant a mile. The soil of this region, although very stony above the alluvial, has great strength, as is evident by the culture of the hill sides, often to the very top, and we remember standing in the midst of a rye field, 800 feet above the village, and viewing the blue ranges of the distant Kaatskill; whilst in the east, the Green mountains of Vermont and Massachusetts stretch from north to south. The chief attraction to this district for the general traveller is "the Springs," but the pharmaceutist naturally inquires for the sources of those numerous packages of roots, herbs, and extracts which annually flow in commerce over the country, duly labelled "New Lebanon."

It was our good fortune to find Mr. H. A. Tilden at his laboratory,* now known all over our country as the source of the best medicinal extracts prepared in vacuo. His business of preparing extracts, has grown so considerably that, at this time, more than twenty thousand pounds of medicinal extracts are annually manufactured, besides a much larger amount of ex-

* See plate at page 576.



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tract of liquorice, made from the imported root. The gardens supplying the plants for a part of this large production are located around the laboratory, in the rich alluvial bottom, which, notwithstanding its great fertility, requires to be manured heavily for the narcotic plants, especially for Hyoscyamus and Belladonna. The Conium, has become so extensively naturalized, that nearly all that is used, many tons in amount, is of spontaneous growth. One of the heaviest items in the list of extracts, is that of Taraxacum, of which root a large amount is cultivated. Much of this extract being employed by nostrum makers, for hepatic and some other diseases.

A branch of operations, recently entered upon by Mr. Tilden, is the preparation, on a large scale, of fluid extracts, of which a great variety are made to meet the demand occasioned by the extensive adoption by physicians of this form of medicine. The vaccuum apparatus, used in the preparation of solid extracts, and which was described by us on a former occasion, (see vol. xx. iii. page, 389) is employed for concentrating the liquids for these with the greatest advantage, without contact of air, and at a low temperature. Notwithstanding the numerous calls on his attention, by the various employees in the works and gardens, Mr. Tilden found time to render our visit in his interesting family extremely pleasant, and to make us acquainted with the neighborhood, by several excursions to the surrounding mountains.

Whilst in the valley, we determined to avail ourselves of an invitation from Mr. Edward Fowler, one of the chief men in the Shaker community, to visit their laboratory, drying-room and gardens, and though not so fortunate as to find him at home, the disappointment was compensated for by the politeness of several other members of the Society, Jonathan Wood, Benjamin Gates and James Long; the two last having charge of the laboratory and herb department. The latter is a building several stories high, the upper rooms employed as a store house. The vacuum apparatus formerly in this building, has been removed to another, where they have provided a steam engine as the source of power for the air pump, in lieu of the old arrangement of a column of falling water, which was not found to answer. The excess of power is used to drive their pugging mill, (a large pair of stone chasers) for crushing green herbs, previously to expressing their juice, besides various powdering apparatus. Their arrangement for displacement with alcohol is continuous, the tincture, as it passes from the percolator beneath, is conveyed to the evaporators, and the condensed vapor conveyed by another channel to the superior end of the percolator to again exert its solvent action, on the principle of Mohr's ether displacing apparatus. The quality of the extracts made here, has much improved since the introduction of the vacuum pan, although they yet unfortunately adhere to the old plan of having two qualities of narcotic and some other extracts; one from the expressed juice, the other by treating the residue from the press with boiling water and evaporating. This arises from the demand for low priced extracts, by parties using them in nostrums. It would be

better policy to make only the best preparations, and then no risk would be run of losing reputation. Their style of putting up extracts has been greatly improved, and in this as well as in the more important feature—their preparation—we can see the excellent effects of a healthy competition with the Messrs. Tilden, who take the lead in the American enterprise of *vacuum extracts*.

Among other uses of the refuse vegetable matter from the press, is that of spreading it around the bases of the trunks of their fruit trees, with, they think, good effects. We visited the garden for culinary vegetables and aromatic plants, and also the orchards for plum, pear and apple trees, which appear to thrive luxuriantly, as we can testify to the excellence of their fruit. We also saw and tasted the "Shaker Seedling," a new variety of grape originating here.

Mr. Gates showed us some sugar of milk of his own preparation obtained from the whey of their cheese presses, which they have heretofore thrown away. As they have forty cows, this new branch of production may prove profitable, though they have not yet attempted it on a large scale. These and other things that attracted our attention we should be glad to dwell upon, did space permit, but the length of this notice cautions us to stop, lest we trench too deeply on pages devoted to graver subjects.

"ALDEHYDE" is informed that anonymous strictures are not published in this Journal, and where writers prefer to use a *nom de plume* instead of their own names, they must at least be known to the Editor, who, in case of publication, assumes the responsibility of the remarks until the name of the writer is divulged. We hope he will be able to accomplish what he asserts his ability to perform, and give it to his brethren in our next number under his proper name.

UNITED STATES NAVAL LABORATORY, NEAR NEW YORK.—During the sitting of the American Pharmaceutical Association in the city of New York, we availed ourselves of the opportunity to visit the Government Laboratory, and were courteously received by Dr. Bache, the director of the establishment. Dr. Edward R. Squibb, the assistant director, who has charge of the operative department, politely exhibited to us the several objects of interest, apparatus, etc. under his charge. The Naval laboratory is located in a building erected several years ago, on the grounds of the U. S. Naval Hospital at Green Point, (Long Island,) as a hospital for small pox, and other infectious diseases, but was found too near the main building, and larger than necessary. Before giving our impressions, it may be well to sketch the history of the enterprise. For many years previous to its institution, the medical department of the navy suffered in its usefulness by the irregular quality of its supplies, and the total want of uniformity and fitness of the outfits for the climates and diseases of the stations on which they were to be employed. This arose partially from the contract system of obtaining supplies, and partially owing to the matter being left to irresponsible parties

to execute, who, having different views, necessarily caused great irregularity in this branch of the medical service. The idea of a government laboratory, as a remedy for this difficulty, is by no means new, but the first practical measures towards calling it into existence, were under the superintendence of Dr. Ruschenberger, with whom it was a favorite idea, and who obtained a small appropriation ($1200), and extended the duties of the apothecary of the Hospital, so as to include the preparation of a number of galenical medicines, (tinctures, etc.,) and some few chemicals, for the use of the U. S. shipping, fitted out at New York.

The laboratory, on its present footing, was established about three years since, by the Navy Department, under the supervision of the Bureau of Medicine and Surgery, at Washington, "as the best means of securing the good quality of the medical stores used in the navy, and of having them put up in a uniform manner, adapted to the objects in view, and the circumstances of variable climate, to which they must be subjected;" and had for its support all the arguments of a conservative character that could be brought in favor of government ship-yards, rope walks, and blacksmith shops. Since its establishment the objects and views contemplated in its origin have been fully carried out under the able direction of Dr. Bache. The resources of this important branch of the public service have been localized and individualized, and the department rendered, in great measure, independent of the competition of individual interests in the quality, quantity, and times of required supplies. Nor have its advantages been limited to its strictly defined boundaries; it is becoming increasingly useful in the detection of adulterations that have so long and so largely been practised in the provisions and clothing, soap and tobacco, supplied to the navy, not to speak of lighthouse oils and sheathing copper. It is an old idea that "it's no harm to cheat uncle Sam," a phrase perhaps originating with smugglers, which has been acted on in too many instances by other parties in contracts with the Government. However bad such rascality is in reference to clothing and provisions it is much worse as regards the medical supplies of the navy. Picture a noble ship passing out the Narrows on a voyage to the African station, freighted with the lives of 600 men in the Government service, and the surgeon upon whom they depend in that sickly climate, provided with a chest of ill assorted and adulterated medicines, furnished by contract. Imagine this ship's company attacked by an epidemic, and the surgeon finds himself almost powerless for want of efficient medicines in proper variety. Where will the blame rest? Where it has always been put, on Providence, instead of on the authorities who attend to the furnishing of supplies. With the present arrangements at the laboratory, every variety of drugs, medicines and chemical substances, adapted to the several great naval stations can be, and are, constantly being put up in forms and quantities calculated to meet all the changes of circumstances that a voyage presents. The establishment is not a mere chemical laboratory, nor an apothecary shop, nor a drug store; it is a union of these in so far as the wants of the navy require; all the materials being subjected to scrutiny before they

are manufactured in the laboratory, or put up in packages for surgeon's use; and being located adjacent to the greatest drug mart of the country, the director is enabled to lay in the crude supplies on favorable terms and with the least delay.

The laboratory building is a substantial structure, in shape a parallelogram, and three stories high. The laboratory, properly speaking, is in the basement, one half of which is devoted to the operating room for furnace operations, solutions, distillations, evaporations, etc. We observed very complete arrangements for heating by steam and by gas, and percolating apparatus on a large scale worked with a nicety not noticed before. Adjacent to the steam engine is the powdering room, where drugs are subjected to the various degrees of comminution requisite for use *per se*, or extraction. It is the custom to garble them carefully, which, as it is carried out without fear of "injuring the profits," adds very materially to the efficacy of the resulting powders. In a smaller apartment above, and beyond the influence of the vapor of the laboratory room, the assistant director has his private operating room, conveniently furnished with balances gas furnace, blow-pipes, etc., etc., for performing the numerous analyses and testings required of him as well in pursuance of his legitimate duties as for other branches of the naval service. In the second story is the "store room," where medicines are kept ready for distribution at a short notice, put up in bottles and canisters of a uniform size and shape, made expressly for naval use and adapted to the chests, which, all emanating from this establishment, they fit in without loss of space. This systematizing applies not merely to the packing of medicines, but to the surgical instruments, splints, and other articles, which, heretofore obtained from various sources, present the most unlike shapes, sizes, and qualities, though intended for the same purposes; and often without any adaptation for packing in a small compass. Now, the chests of instruments are compact, uniform and well selected, contrasting favorably with the collection of obsolete appliances and instruments which, we observed, have accumulated as useless in one of the apartments.

The scope of the laboratory embraces all the preparations of the United States Pharmacopœia, with the single exception of sulphate of quinia, and some that are not there included, and is governed by that authority in regard to standards of strength and quality; but in reference to the processes used, they are, as in ordinary manufacturing laboratories, the result in a great degree, of its own experience, especially as regards mechanical contrivances. Should this laboratory go on increasing in experience and scope, so as to include both the army and navy in its supplies, and be conducted on the plan it is at present, it will be highly creditable to the general government, and prove of incalculable advantage to both branches of the service in case of war calling for increased supplies. The laboratory at present furnishes the medical stores for about 8000 men and two thousand officers in the navy, besides keeping up a supply at several depots, to meet any sudden demand; and has been established sufficiently long to prove itself to be a measure of absolute economy in expenditure.

Polytechnic College.—We have received the Third Annual Announcement of the Polytechnic College of the State of Pennsylvania from the President of the Faculty, According to its showing, the Institution, though so recently established, is in a flourishing condition; all the Professorships are filled by individuals qualified for their responsible duties. Thirty-four Matriculants attended the last term. The five courses taught under the general heads, "Civil Engineering," "Mechanical Engineering," Chemistry, general and applied," "Mining Engineering" and "Agriculture," pass into each other on various subjects; no one individual attending all of them. From the synopsis of the courses, the tuition must be very thorough, and eminently calculated to develope the talents of young men, and fit them for the active duties of life, whether scientific, industrial, or mercantile. Those of our readers who may desire further information in regard to the Polytechnic College, should address a letter to Dr. Alfred L. Kennedy, President of the Faculty, No. 268 South Eleventh Street.

On the cheaper Alkaloids of the Cinchonas.—Under this title we have read a pamphlet of sixteen pages, written by Daniel B. Smith, Esq. of Philadelphia, at the request of Messrs. Powers & Weightman, by whom it is circulated gratuitously. The object of the pamphlet is to show, from the testimony of eminent physicians, that cinchonia, quinidia and the alkaloidal matter known in commerce as quinoidine, possess antiperiodic and febrifugal power, to an extent which, if not quite equal to quinia, are so nearly equivalent to it as to demand the serious attention of medical men in an economical point of view. The price of sulphate of quinia has now gone up from the immense demand for it in our Western States, to above three dollars the ounce, whilst sulphate of cinchonia can be purchased for from 70 to 80 cents, and quinoidine much less. From the published experiments of Dr. Pepper and others, in reference to the therapeutic power of the sulphates of cinchonia and quinidia, these salts are considered so nearly equivalent to sulphate of quinia, that in the practice of the Pennsylvania Hospital they are used indiscriminately, whilst Dr. Da Costa's trials with quinoidin in 53 cases, convinced him that it is about three-fifths as strong in curative power as the quinia salt. Further, Prof. R. P. Thomas, of the Philadelphia College of Pharmacy, has, for some months past, been using the cinchonia salt in his own practice, and in that of two institutions with which he is connected, besides inducing several of his friends to employ it regularly, and the result is that he is quite convinced of its efficacy being equal to that of the quinia salt. As a large number of the cases requiring these agents are among the poor, it is of great importance that medical men should consult the interest of these by prescribing the sulphate of cinchonia.

AN INTRODUCTION TO PRACTICAL PHARMACY, *designed as a Text-book for the Student, and as a guide to the Physician and Pharmaceutist, with many formulæ and numerous illustrations.* By EDWARD PARRISH. Philadelphia: Blanchard & Lea, pp. (about) 500 octavo. 1855.

Since the publication of the American edition of Mohr and Redwood's Practical Pharmacy, no special work has appeared on this subject in the English language. The announcement, therefore, that a new treatise on Practical Pharmacy is about to issue from the American press, is calculated to attract the attention of pharmaceutists and lead them to inquire into its character and scope. Although not yet published, an opportunity has been afforded us to examine a large portion of the work in sheets, and we are able to give an outline of its contents for the information of our readers.

It is known to many that the author has for some years past been engaged as a teacher of Practical Pharmacy (both by lectures and practical instruction) to medical students, and, like all who have been thus engaged, he has felt the want of a text-book, as an aid to his pupils. The book before us was commenced with a view to satisfy this want, but in its progress, the author determined to enlarge on his original plan, so as, without claiming for it the fulness of a handbook of Pharmacy, to render it very useful to the strictly pharmaceutical student by its systematic arrangement, as well as to pharmaceutists in general, by the body of valuable information introduced from the journals and other sources in reference to new preparations.

The book is in five parts: the first is preliminary, and relates to the furniture of the shop and the country physicians' office, to weights, measures and specific gravity, and to a notice of the Pharmacopœia.

The *second* part treats of *Galenical* Pharmacy in fourteen chapters, embracing the collection and dessication of plants, the processes of pulverization, solution, filtration, maceration, infusion and percolation. The various liquid preparations made by these processes are considered in classes, as tinctures, wines, vinegars, infusions, decoctions, etc. In order to condense as much as possible, the author brings forward the *officinal* preparations in tabular form, giving the proportions, prominent medical properties, and doses. This is effected by dividing them into classes based on the proportion of the substances to the menstruum; or the nature of the menstruum. Formulæ for the more important *un*officinal tinctures are then brought forward with special remarks. This plan is followed throughout the work, with some exceptions; the author relying on the general directions given under the head of each class of medicines, and the manipulations described under each general process, as sufficient to enable the student to understand the tabulated formulæ.

The apparatus for generating heat, and the modes of applying it, are considered as a preliminary to the process of evaporation, and the preparation

of extracts and syrups. In treating of the arrangements for heating, the author confines his remarks and illustrations almost entirely to alcohol lamps and gas burners, referring to the larger works for information on furnaces and furnace operations. The remarks relative to the preparation of decoctions and extracts are judicious. After the tabulated formulæ several unofficinal extracts, as those of Ignatia Amara, Lupulin, Cimicifuga, Ergot, Pareira, Lobelia, etc., are introduced, followed by several of the Eclectic resinoid preparations. A distinct chapter is allotted to the fluid extracts, which, as few are recognised in the pharmacopœia, is mainly occupied with an account of those not officinal. The chapter on syrups embraces several that are new, among which we notice compound syrups of Carrageen, and of Blackberry root, and syrups of Gillenia and of Frostwort. The fancy syrups for "Mineral Water" have not been overlooked.

Following the syrups the solid saccharine preparations, conserves, electuaries, lozenges, etc., are noticed, with special formulæ for those that are unofficinal. The last chapter in "Galenical pharmacy" is headed "Distillation and spirits," and describes the forms of apparatus used in small distillatory operations and the manipulations they require in use, illustrated with numerous figures, as are the preceding chapters on processes, many of which have been executed expressly for this work.

The *third* part is called "The Pharmacy of plants, their products, &c." and is an account of the proximate principles of plants, and the products and preparations derived from, or made with them; commencing with Lignin starch gum and sugar, and ending with the alkaloids; occupying about ninety pages. The limited space devoted to this part makes the notice of most of the principles very brief, and many are merely named, yet by resorting to tabulation the author has been able to present a very considerable array of facts in connection with each numerous class, in a way well adapted to aid the memory of the student. There are exceptions to this brevity, however, as in the notices of collodion, hydrocyanic acid, morphia, quinia etc.

The *fourth* part treats of "Inorganic Pharmaceutical Preparations," under the several heads of acid, alkaline, earthy, non-metallic, and metallic substances used in medicine. This, as might be anticipated, is the least original part of the book; yet without it the work would have been incomplete. The author has limited himself to a succinct description of the preparations and manipulations, without discussing the retionales, or dwelling on their chemistry; in fact the operations of the laboratory are barely intruded on so far as they may be brought within the scope of shop practice, or the physician's office.

The *fifth* and last division is entitled "Extemporaneous Pharmacy," and is, perhaps, in some respects, the most important part of the book, inasmuch as the subject is less commonly treated of in works on Pharmacy in the English language, and is more like the French treatises on "L'Art de Formuler," one of which is familiar to some of our readers in Dorvault's "Officine." The chapters on prescriptions, the language of prescriptions,

the writing of prescriptions, the art of combining medicines, and the list of examples of prescriptions, are intended more specially for the medical student, but embrace much of interest to the student and practitioner of Pharmacy. On the whole, we have been much pleased with this "Introduction to Practical Pharmacy," and believe it will prove a valuable addition to our pharmaceutical literature, and especially valuable to medical students who aim at learning more of Pharmacy than the ingredients of its formulæ. There are portions of the book obnoxious to criticism, and it is not difficult to point out errors which should have been avoided, and improvements which might have been introduced, but the late period at which the sheets were placed in our hands, and the limited space left in this concluding form, precludes our bringing them to notice, as it equally prevents us from gratifying our readers by giving some examples of the novelties, style, and illustrations of the author, which we hope to be able to do in a future number.

THE BOOK OF PRESCRIPTIONS, *containing* 2,900 *Prescriptions, collected from the practice of the most eminent Physicians and Surgeons, English and foreign, comprising also a compendious history of the Materia Medica of all countries, alphabetically arranged; and lists of the doses of all officinal or established preparations.* By HENRY BEASLEY, Philadelphia, Lindsay & Blakiston, 1855, pp. 369, 12 mo.

As this book is a reprint from the English, the extemporaneous formula are mostly those of British, physicians and consequently in many instances have reference to preparations of different strength and composition from those that are employed here. They are clothed in a full Latin garb, and should the work become popular among young Physicians, we may have a return to the now nearly obsolete practice of writing prescriptions with the direction in Latin, (or dog latin) abbreviated in the most approved style. The prescriptions are arranged under the heads of the most prominent drug they contain, which is previously described in a brief manner. After many of the prescriptions the diseases for which they are intended are stated, and in most instances the names of the prescribers. There are, doubtless, many practitioners who will find in this book a substitute for that originality of thought and tact in therapeutics, which is a characteristic of the true Physician, and to these we commend it. As regard the "getting up," the paper, typography and binding are unexceptionable, and highly creditable to the publishers.

Report on the Minerals and Mineral Waters of Chile. BY J. LAWRENCE SMITH, Prof. of Chemistry, University of Louisville. 25 pp. 4to.

Memoir on Meteorites. By the same.

We have only space to acknowledge the reception of the above Memoirs from the author, and to observe that the first "report" is on the Minerals, etc., brought from South America by the U. S. Naval Astronomical Expedition sent to Chile several years, since under Lieut. Gillis.

Codex

INDEX

TO VOL. XXVII. (VOL. III. THIRD SERIES) OF THE AMERICAN JOURNAL OF PHARMACY.

Acetic acid and its use in perfumery 79
Acid, carbazotic, for intermittents 17
Acid, carbolic, as an antiseptic 18
Acid, xanthosantalic 115
Aconite, researches on 445
Aconitic acid in Delphinium consolida 152
Aconite and chloroform liniment 515
Action of iodic acid on the vegetable alkalies 57
Action of citric, tartaric and oxalic acids on cotton and flax fibres under steam heat 83
Action of picric acid on the animal economy 316
Active principle of Centaurea calcitrapa 266
Advantages of a single uniform British Pharmacopœia 11
Advantages of Twaddle's hydrometers over those of Beaumé and Beck . 343
Adulterated oil of aniseed 513
Adulteration of saffron, new 318
Aldehyde in vinegar, wine and brandy 111
Alcohol, its production from bicarburetted hydrogen, ... 258
Alcohol and wood spirit, their relative fuel value 264
Alcohol made from wood 106
Alcohol, production of 376
Aleurites triloba, or candle-nut 235
Alkalimetry, new method of 29
Almond soap 561
Aluminium, manufacture of 414
Aluminium and its chemical combinations 319
Alteration of sugar dissolved in water 439
Ambergris 74
Ambrosial cream 565
American Pharmaceutical Association 185, 379, 479, 568
American Pharmaceutical Association, notice of 283
American Pharmaceutical Association, proceedings of 481
American oil of peppermint 221
American senna, examination of 300

American extract of liquorice 311
Amianthus as a substitute for lint 317
Ammonia as a perfume 78
Ammonia, on the manufacture of 362
Amygdalin from peach kernels, preparation of 226
Analysis of nitric and acetic acids 47
Analysis of the tubers of Dioscorea batatas, grown near Paris . . 261
Anhydrous persulphate of iron 20
Animal charcoal, revivification of 110
Anæsthesis of bees 376
Anæsthetic principle of Lycoperdon proteus 464
Aniline, preparation of 450
Anise, falsification of oil of, with spermaceti 472
Aniseed, adulterated oil of 513
Annals of Pharmacy and Practical Chemistry 186
Antidote for strychnia 555
Antidote for poisonous fungi, tannin an 535
Antidote for phosphorus, magnesia as an 538
Antidote for mercury, sulphite of soda an 537
Antidotes for copper, on the various 537
Antimonial powder of the Dublin Pharmacopœia 126
Antimoniate of quinia in intermittents 318
Aromatic vinegar 79
Artificial preparation of oil of cinnamon 20
Artificial formation of taurine 21
Artificial production of oil of mustard 521
Artificial stones, production of 523
Arum esculentum 235
Arnica plaster 514
Aromatic syrup of galls 416
Arsenic, easy method of purifying sulphuric acid from 417
Arsenious acid, compounds of iodide of potassium with 270
Asclepias verticillata as a counter-poison 452
Assafœtida, wine of 216
Assay of iodine, new wet 509
Asparagus as a diuretic 557
Asparagin in Robinia pseudo-acacia 528

Bache, Franklin, M. D., on the advantages of a single British Pharmacopœia 11
" " on the nomenclature of salts 213
Baker, T. Roberts, on fluid extract of ergot 302
Bakers' bread, chemical examination of 442
Bechamps, M. A., on the preparation of aniline 450
" " new researches on starch 139
Beer, substitute for tar- 13
Behavior of palm oil when heated 345
Belladonna, iodine for poisoning by 534
Belladonna leaves, spontaneous decomposition of 453

Benzoic acid from urine 23
Berthollet, M., on the production of alcohol from bicarburetted hydrogen 258
Berthollet and De Luca, on the artificial production of oil of mustard . 521
Binks, C., improvements in the composition of paints 175
Binoxide of lead, preparation of 20
Bitumen springs of California 377
Bituminous coal, volatile liquids produced from 551
Black pepper of Western Africa, ... 19, 267
Black stain for wood 429
Blengini, M. G., on the falsification of cream of tartar with sugar of milk, 451
Block, M., on the preparation of pure carbonate of potash . . . 266
Blistering plaster, on a new 499
Bolley, Dr., on the advantages of Twaddle's over Beaumé's and Beck's hydrometers 343
Bolley, P. A., on saponin and senegin 43
Bouis, J., on the oil of the purging nut 141
Bouquets and nosegays in perfumery 176
Bouquet d'Amour 177
Bouquet des fleurs du val d'Andorre 177
Bouquet de Caroline 178
Bouquet de Flora 181
Bouquet de Jockey Club 181
Bouquet de Marechale 275
Bouquet de la Reine 275
Bouquet de Montpellier 275
Bouquet of all Nations 275
Bouquet du Roi 275
Bourgarel, M., on the preparation of rennet and whey 456
Brett, R. H., Esq., on the action of iodic acid on the vegetable alkalies . 57
Briant, M., on a new process for electro-gilding 356
Brown Windsor soap 562
Buckingham Palace bouquet 178
Buchner, L. A., on a method of freeing sulphuric acid from arsenic . . 417
Bunsen, M., on lithium and strontium 359

Caffein, physiological effects of 109
Caffein, on preparation of 225
Caffein, reagent for 272
Cake cochineal 262
Calvert, Prof., on the purification of coal naphtha 58
" " on the action of tannin and gallic acid on alumina mordents 82
Caldwell, Alonzo, on tincture of muriate of iron 211
Camphor soap 561
Cantharides among the lawyers 86
Cantharides, amount of water in commercial 86
Canavan, John, on fluid extract of red bark 229
Cannabis sativa, preparations of, in India 360
Caoutchouc, on the extraction of 542

Caoutchouc of the Amazon 545
Capsici, syrupus 306
Capdeville, M., on orgeat syrup 450
Caramania gum 427
Carbonate of magnesia from Epsom salts 365
Carbonate of magnesia from bittern 367
Carbonate of magnesia from dolomite 367
Carbonate of magnesia from magnesite 370
Carbonate of potash, preparation of pure 266
Carbolic acid as an antiseptic 18
Carbazotic acid in intermittents 17
Carson, Prof. Joseph, note on Nectandra puchury-major and minor as the source of pichurim oil, bark and bean 385
Caspar, Dr., on poisoning by colchicum and a test for colchicin . . 539
Cassia marilandica 300
Castor oil, its culture and manufacture 99
Castor oil as a substitute for olive oil and lard in liniments . . . 516
Castor as a perfume 76
Castile soap 559
Catalogue of the class of the Philadelphia College of Pharmacy for 1854–'5 95
Cavendish Society 185
Censer, the 468
Charcoal as a disinfectant 167
Charcoal as a medium of inhalation 431
Charcoal, disinfecting properties of 518
Chemical examination of Chrysomela ænea 525
Chemical nomenclature 308
Chemical nomenclature, remarks on 114
Chemical history of lupulin 24
Chemical examination of Cubeba clusii 267
Chemical examination of bakers' bread of Philadelphia 442
Chemico-legal detection of copper 535
Chinese method of scenting tea 529
Chinese potato, analysis of the tubers of the 261
Chocolate in lozenges 315
Chloride of ethyl-quinine 324
Chrysomela ænea, chemical examination of 525
Cicuta maculata, or water hemlock 289
Cimicifuga, fluid extract of 515
Citrate of iron 297
Citrate of iron and quinia 294
Citrate of magnesia, soluble 317
Citron soap 564
Civit as a perfume 75
Circumstances modifying the action of chemical affinity 326
Cinnamon leaf oil 165
Cinnamon, artificial formation of oil of 20
Coca leaves of Peru 33

Coal naphtha, purification of 58
Coal, improvement in obtaining the volatile products of 551
Coal-tar creasote 54
Cod-liver oil with quinia 319
Cochineal, on a new variety of 262
Cochineal of the Canary islands 434
Colchicin, test for 539
Colchicum, poisoning by 539
Colignon, L., on the active principle of Centaurea calcitrapa . . . 266
Composition of tannic acid 49
Compound syrup of squill 219
Compounds of arsenious acid with iodide of potassium 270
Constantin, M., on the emulsions of the gum resins 61
Concentrated wine of assafetida 216
Contributions to toxicology 533
Conversion of cane into grape sugar in the syrup of iodide of iron . . 393
Conia from Cicuta maculata 292
Constitution of coal-tar creasote 54
Copney, William, on nitrate of silver and tannic acid in pills . . . 413
Copalche bark 161
Corydalis formosa, or Turkey corn 205
Corydalia 207
Corrosive sublimate, value of albumen and hydrate of magnesia as antidotes for 533
Court nosegay perfume 178
Cotton plant root, its use in medicine 419
Copper, detection of, in medico-legal analyses 535
Creasote from coal-tar 54
Cream of tartar, its falsification with sugar of milk 451
Cream syrups for mineral water 407
Cream syrups 500
Crew, B. J., on a substitute for tar beer 13
Culture of the coca in Peru 35
Culture of cochineal in the Canary islands 434
Culture of castor oil in Illinois 99
Cubeba clusii, or black pepper of Western Africa 267
Cucurbita laginaria, a purgative gourd 235
Cutting, James A., patent for photographs on glass 548

Danger of keeping tobacco in leaden boxes 472
Daniell, W. F., M. D., on the frankincense tree of Western Africa . 338
Daniellia thurifera 339
Darby, Stephen, charcoal as a medium of inhalation 431
Delfs, Prof. W., on a reagent for caffein 272
Delphinium consolida, aconitic acid in 152
Deodorized alcohol 379
Deodorizing and disinfecting properties of charcoal, lime, sand and gravel 518
Depilatory 82

Deville, H. St. Claire, on the manufacture of aluminium, . . 414
" " on silicium and titanium 440
" " on aluminium and its chemical compounds . 319
Description of a new gas furnace 275
Detection of copper in chemico-legal analysis . . . .
Distilled water of strawberries 313
Diuretic wine 314
Diuretic properties of asparagus 557
Domestic medicines 285
Donovan, M., on the method of exhibiting opium and acetate of lead in cholera 172
Dupuy, Eugene, on a new blistering plaster 499
Dupuytren's pommade for restoring the hair 83

Easy method of preparing atropia 155
Easy method of purifying sulphuric acid from arsenic . . . 417
Eau a bruler 471
Eau de Cologne 179
Eau de chypre 178
Eau de luce 79
Eau de milfleurs 275
Eau de mousseline 275
Ebermayer, E., on pyroguaiacine 46
Economical manufacture of neutral persulphate of iron . . . 501
Editors *vs.* postage 285
Editorial department 85, 185, 284, 379, 477, 568
Effects of pressure on the fusing point 107
Effects of sunlight on Syrupus ferri iodidi 218
Electro-magnetic engraving machine 278
Electro-gilding, new process for 356
Elements of chemical and physical geology, Bischoff's . . . 287
Emulsions of the gum resins 61
Emplastrum arnicæ 514
Enz, J. B., chemical examination of Chrysomela ænea . . . 525
Ergot of wheat 315
Ergot, fluid extract of 302
Ergot, method of preserving 309
Erythroxylon coca 33
Erigeron Philadelphicum, volatile oil of 105
Esterhazy bouquet 179
Essence of ambergris 75
Essence of peppermint 472
Ethyl-quinine, iodide of 321
Ether, gelatinization of 517
Examination of bitartrate of potassa 204
Examination of the preparations made by the American Chemical Institute, New York 388
Examination of sulphate of quinia of Messrs. Powers & Weightman 395, 505

Extrait d'ambreé 75
Extract of civet 76
Extract of musk 77
Extract of taraxacum 129
Extract of stramonium 391
Extract of liquorice, American 311
Extractum Ignatiæ amaræ alcoholicum 227
Extractum Sumbul fluidum 233
Extraction of caoutchouc in Brazil 542
Extractum cimicifugæ fluidum 515

Falsification of cream of tartar with sugar of milk . . . 451
Falsification of oil of anise with spermaceti 472
Fat of Myristica otoba 271
Fermentation and putrefaction, investigation of their phenomena . . 457
Field, John James, on the structure of the starch granule . . 134
Fig soft soap 560
Fluid extract of ergot 302
Fluid extract of hydrangea 228
Fluid extract of red bark 229
Fluid extract of sumbul 233
Fluid extracts of Tilden & Co. 477
Fluid extract of cimicifuga 515
Florida indigo 473
Frankincense tree of Western Africa 338
Fremy, E., analysis of the tubers of Dioscorea batatas . . . 261
Frangipanne soap 564
French enterprize in Algeria 107
Fuller's earth soap 562
Fumaric acid in Corydalis formosa 205
Fumigating paper 471
Fungi, tannin an antidote for the poisonous 535

Galbanum and its tincture 305
Galls, aromatic syrup of 416
Garrigues, S. S., on the preparation of amygdalin from peach kernels . 226
Gelseminum sempervirens 197
Gelsemin 202
Gelatinization of ether 517
Gillé, Norbert, on the spontaneous decomposition of belladonna leaves, . 453
" " on the powder of nux vomica 534
Giles, Mr. R. W., on liquor and extractum taraxaci, and other extracts and expressed juices 129
Glycerin of fatty acids separated by steam heat 121
Glucose in opium, lactucarium, &c. 69
Gladstone, J. H., on the circumstances modifying the action of chemical affinity 326
" " method of estimating nitric and acetic acids quantitatively 47

Glycerin, preparations of 158
Glycerin as an internal remedy 230
Gobley, M., on preparation and use of perchloride of iron . . 63
Gomphosia chlorantha bark in calisaya 157
Green, J. W., M. D., on woorara or South American arrow poison . 454
Grunault, M., on the gelatinization of ether 517
Guard's bouquet 181
Gulick, Luther H., M. D., on the materia medica of the Sandwich Islands 234
Gum mezquite 14, 223
Gum resins, emulsions of the 61

Hanbury, Daniel, note on tragacanth 426
Harris, J. C., M.D., on Asclepias verticellata as a cure for snake bites . 452
Hart, Peter, description of a new gas furnace 475
Harmee, E., on the compounds of arsenious acid with iodide of potassium 270
Henbane segars 20
Henry's Aromatic Vinegar, ... 80
Herapath, Thornton J., on the anæsthetic principle of Lycoperdon proteus 464
Hermite, L., on the oleates of the organic alkalies, ... 72
Hive syrup, preparation of 209
Hlasiwetz, H., on the occurrence of asparagin in Robinia pseudo-acacia . 528
Hodgson, William, Jr., on Saratoga Salt 502
Honor to the deserving 380
Honey soap 562
Holcus saccharatus, or sugar plant 182
Howard, J. E., on copalche bark 161
" " on the bark of Gomphrosia chloroxantha found mixed with quill calisaya 157
Howardii febrifuga, *Weddell* 447
Hubbell, O. S., letter relative to cream syrups 408
Hydrangea arborescens, fluid extract of 228
Hydrate of cresyle 55
Hydraulic limes 522
Hygienic vinegar 81
Hydrocyanic acid detected in a corpse three weeks after death . . 536

Identity of peucedanine with imperatorine 165
Ignatia amara, alcoholic extract of 227
Improvement in the manufacture of bakers' yeast . . . 183
Improvements in obtaining the liquid volatile products from coal . . 551
Indian yellow pastils 469
Indigo, Florida 473
Influence of rattlesnake virus on plants 153
Incompatibility of sulphate of quinia with the acetates . . . 97
Inexhaustible salts 78
India rubber of the Amazon 545
Inulin, preparation of 69

Influence of the elevation of the soil on the mortality of cholera . . 184
Iodic acid, its action on the vegetable alkalies 57
Iodide of ethyl-quinine 321
Iodide of methyl-quinine 322
Iodine, process for manufacturing 358
Iodine for poisoning by belladonna 534
Iodhydrine 22
Iron, anhydrous persulphate of 20
Iron, preparation of perchloride of 63
Iron, tincture of chloride of 103
Iron, tincture of muriate of 211
Iron, manufacture of neutral persulphate of 501
Iron and quinia, citrate of 294
Iron, preparation of protoxide of 527

Jeffersonia diphylla, notice of 1
Jeaffreson, S. J., M. D., on asparagus as a diuretic . . . 557
John, Frederick L., on the preparation of oil of Erigeron philadelphicum 105
Jones, Dr. Bence, on lemon juice 474

Karmrasch, C., on a black stain for wood 429
Keller, Dr. E., on genuine theobromine 150
Kew garden nosegay 274
King's, Dr. J., table of urinary deposits, notice of . . . 192
Kollock, M. Henry, on Gelseminum sempervirens . . . 197
Kuhlman, F., on hydraulic limes, artificial stones, and various new applications of the soluble silicates 522

Lac magnesia as an antidote to phosphorus 538
Lard an antidote for strychnia 555
Lahens, M. Magnes, on the presence of glucose in opium, lactucarium, &c. 69
Lawson, W., on liquor ammoniæ 362
Letters of Messrs. Powers & Weightman relative to their sulphate of quinia 300, 404, 508
Lemon juice 474
Leuchsenring, H., on caffein 225
Leamy, James C., on Extractum cimicifugæ fluidum . . . 515
Limits of the vaporization of mercury 375
Lime, disinfecting and deodorizing properties of 518
Liquor taraxaci 129
Liquor morphia sulphatis 304
Liquorice, American, extract of 311
Liquor ammonia, manufacture of 362
List of graduates of the Philadelphia College of Pharmacy, 1855 . . 282
Lithium and strontium 359
Liebig, Prof. J., on a simple method of preparing protoxide of iron, manganese and tin 527
Lupulin, chemical history of 24

Luxton, W. T., on an easy method of preparing atropia . . . 155
Lycoperdon proteus, on the anæsthetic principle of . . . 464

Magnesia, manufacture of the carbonate of 364
Magnesiæ sulphas 306
Maisch, John M., on the incompatibility of sulphate of quinia with the acetates 97
" " examination of bitartrate of potassa . . . 204
" " effects of sunlight on the syrup of iodide of iron . 216
" " translation of M. Strecker's paper on quinine . 241, 321
" " " contributions to toxicology . . . 533
Maltass, Sidney H., on the production of opium in Asia Minor . . 251
" " on tragacanth and its adulterations . . . 423
Malapert, M., on the quantity of nicotine inhaled by tobacco smokers . 119
Manufacture of alcohol from wood 106
Manufacture of aluminium 414
Manufacture of carbonate of magnesia 364
Manufacture of liquor ammoniæ 362
Manufacture of neutral persulphate of iron 501
Manufacture of prussiate of potash 162
Manufacture of castor oil in St. Louis 99
Mangostine 331
Manganese, preparation of protoxide of 527
Manures, nascent 246
Martius, Dr. T. E., on the culture of cochineal in the Canary Islands . 434
Materia medica of the Sandwich Islands 234
Materials for paper making, from India 39
Marine soap 559
Massachusetts College of Pharmacy 286
Maumené, E., on the alteration of sugar dissolved in water . . 430
Medical effects of teroxide of antimony 126
Medicinal preparations of glycerin 158
Menispermum canadense, or yellow root 7
Mercurial ointment 19
Method of exhibiting opium and acetate of lead in cholera . . 172
Method of preserving ergot 309
Methyl-quinine, iodide of 322
Mezquite, remarks on gum 14, 223
Milk, solidified 112
Mistura ferri composita, error in making 193
Milfleurs and lavander 274
Minutes of the College of Pharmacy 279, 566
Mohr, Dr. F., on spirit of nitrous ether and nitric ether . . . 59
Mode of testing the presence of phosphoric acid in a soil . . 428
Morris, Dr. J. Cheston, on chemical nomenclature . . 114, 308
Morfit, Dr. Campbell, on the economical manufacture of neutral persulphate of iron 501
Muller, C. J., Esq., on the preparations of Cannabis sativa in India . 360

Mustard, artificial production of oil of 521
Musk 76
Murdoch, James, on syrup of hydriodic acid 410
Myristica otoba, fat of 271

Nascent manures 246
Native carbonate of magnesia 364
Naples soft soap 560
Nectandra puchury-major and minor 385
Nectar cream syrup 409
New method of alkalimetry 29
New hæmostatic 108
New variety of silk worm from India 110
New test for diabetic sugar 111
New researches on starch 139
New sugar plant 182
New variety of cochineal 262
New tænifuge medicines from Abyssinia 474
New hæmostatic agent 316
New process for electro-gilding 356
New method of biting for heliographic engraving 374
New York Journal of Pharmacy 186
New York College of Pharmacy 480
New work on practical pharmacy 380
New wet assay of iodine 509
New application of the soluble alkaline silicates 522
Neutral persulphate of iron 501
Nicotina inhaled by tobacco smokers 119
Nitric ether 59
Nitrate of silver and tannic acid in pills 413
Nomenclature of salts 213
Notice of the meeting of the American Pharmaceutical Association 378, 476
Note on the india rubber of the Amazon 545
Nunn, Dr. R. J., on a method of preserving ergot . . . 309
Nux vomica in powder, poisoning by 534

Observations on the root of the cotton plant 419
Occurrence of asparagin in Robinia pseudo-acacia 528
Odorizing of wines in Greece 109
Oil of cinnamon, artificial preparation of 20
Oil of cinnamon leaf from Ceylon 163
Oil of Erigeron canadense in hæmorrhagia 319
Oil of Erigeron philadelphicum 105
Oil of the purging nut 141
Oil of Ptychotis ajowan, stearopten of the 150
Oil of peppermint, American 221
Oil of aniseed, adulteration of 513

Oil of mustard, its artificial production 521
Oils, spontaneous saponification of 350
Oils of the dolphin and phocenic acid 375
Ointment of stramonium 391
Oleates of morphia, quinia, veratria, strychnia and atropia . . 72
Olla podrida 373
Onions in epistaxis 319
Opium of Algeria 22
Opium, its production in Asia Minor 251
Opium fumes in coryza 109
Orgeat syrup 450
Orange flower water 564
Organic alkalies, solubility in oleic acid 72
Osborne, Jonathan, M.D., observations on antimonial powder of the Dublin Pharmacopœia, and on the medical effects of teroxide of antimony 126
Otto of rose soap 564
Outlines of chemical analysis, notice of 191

Paint, improvements in the composition of 175
Palm oil, effects of heat on 345
Palm soap 559
Paper, new materials for making it, from India 39
Parrish, Edward, on fluid extract of hydrangea 228
Paris's pastils 469
Paraffine oil 551
Paraffine 551
Pastils 468
Patchouly soap 564
Patent for manufacturing iodine 358
Patent for photographs on glass 548
Peau d'Espagne 374, 467
Pemberton, Henry, on the facts and theories of fermentation and putrefaction 457
Perfumery 74, 175, 273, 371, 467, 558
Perfume lamp 470
Perfumed book-markers 467
Perfumed soaps 558
Personne, J., on the chemical history of lupulin 24
Perot, Elliston, L., on Cassia marilandica 300
Pelouze, J., on the spontaneous saponification of oils under the influence of substances that accompany them in seeds . . . 350
Pettenkoffer, Prof., on the occurrence of tannic acids in woody plants . 53
Peucedanine and imperatorine identified 165
Peppermint, essence of 472
Pharmacopœia, Dr. Bache on the advantages of a single British . . 11
Pharmacy in New York 187
Pharmacy in Canada 186
Pharmaceutical studies in Austria 472
Phosphorus paste for destroying vermin 473

Phosphoric acid, test of its presence in a soil 428
Photographs on glass 548
Philadelphia College of Pharmacy 480
Physiological properties of some compounds of ethyl, methyl and amyl . 31
Picric acid, its use in intermittents 17
Piesse, Septimus, essays on perfumery . . 74, 176, 273, 371, 467, 558
Piesse's pastils 469
Piper methisticum 236
Pichurim oil and nuts 285
Pisiculture 376
Pindell, Dr. W. N., on an antidote for strychnia 355
Plummer, Dr. John T., on a serious mistake in the preparation of Mistura ferri composita 193
" " on some pharmaceutical preparations . . 304
" " on red sandal wood and xanthosantalic acid . 115
Pohl, Dr. J. J., on the behavior of palm oil when heated . . 345
Poison of the rattlesnake, effects of it on plants 153
Poisonous properties of the common yew tree 536
Poisoning by colchicum 539
Poudre de Cancase 314
Powder of nux vomica 536
Powers & Weightman, letters relative to their sulphate of quinia 300, 404, 508
Preservation of milk 18
Preservation of flesh meat 18
Preparation and use of chloride of iron 63
Preparation of Olea cocta 67
Preparation of inulin 69
Preparation of atropia 155
Preparation of amygdalin from peach kernels 226
Preparation of anilin 450
Preparations of Cannabis sativa in India 360
Preston salts 79
Price, Astley Paston, on a new method of alkalimetry . . . 29
Procter, William, Jr., remarks on gum mezquite . . . 14
" " on benzoic acid from urine . . . 23
" " on the culture and manufacture of castor oil in Illinois and St. Louis 99
" " on the volatile oil of Erigeron philadelphicum . 105
" " on American oil of peppermint . . . 221
" " on gum mezquite 223
" " on extract of Ignatia amara . . . 227
" " on the fluid extract of sambul . . . 228
" " on cream syrups for mineral water . . 407
" " on American extract of liquorice . . . 311
" " aromatic syrup of galls 416
" " adulterated oil of aniseed 513
" " on the preparation of arnica plaster . . 514
" " note on aconite and chloroform liniment . . 515

Process for revivifying animal charcoal 110
Process for tinning metals 268
Preserved meat juice 231
Production of opium in Asia Minor 251
Production of alcohol from bicarburetted hydrogen . . . 258
Production of alcohol 376
Proceedings of the American Pharmaceutical Association . . 581
Propylammine from the flowers of Cratægus oxycanthus . . . 110
Protoxides of iron, manganese and tin, preparation of . . . 527
Prussiate of potash, manufacture of 162
Purification of coal naphtha 58
Putrefaction prevented by filtered air 113
Putrefaction, investigation of the facts and theories of . . . 457
Pyroguaiacine 46

Quicksilver mines of New and Old Almaden 335
Quinia, antimoniate of, in intermittents 318
Quinia, citrate of iron and 294
Quinia, preparation of 298
Quinia, sulphate of 479
Quinia, examination of Powers & Weightman's sulphate of . 395, 505
Quinia, sulphate of iron and 316
Quinia, cod liver oil with 319
Quinine taken without tasting it 21
Quinine, substitute for 111
Quinine, researches on the constitution of . . . 241, 321
Quinine, nitrate of 243
Quinine, sulphate of 243
Quinine, nitrate of silver and 244
Quinine ether 83
Quinologia, by Delondre and Bouchardat 89
Quinidia, use of the sulphate of 108

Reagent for caffein 272
Red bark, fluid extract of 229
Red santal wood 115
Relative fuel value of alcohol and wood spirit 264
Remarks on chemical nomenclature 114, 304
Remarks on gum mezquite 14
Remarks on Saratoga salt 502
Resin of lupulin 29
Rennet, preparation of 456
Researches on the constitution of quinia 241, 321
Report of the New York Academy of Medicine on solidified milk . 383
Review. Quinologia of Delondre & Bouchardat 89
Review. Positive medical agents, &c 93
Review. Memoirs of Dalton 380
Review. Medical chemistry for students 384

Researches on aconite 445
Review. Parrish's, Practical Pharmacy 574
Review. Beasley's Prescription book 576
Rheumatism root 1
Ritter, Bradford, on cream syrups 500
Robiquet, M. E. on the molecular constitution of tannin and gallic acid . 51
Rosseleur & Boucher, on a process of tinning metals . . . 268
Rondeletia, a perfume 275
Rondeletia, essence of 276
Rose and purple dye for silk 84
Royle, J. F., M. D. &c. on materials for paper making from India . 39
Robinia pseudo-acacia, asparagin in 528
Rypophagon soap 565

Sachets of various perfumes 372
Saffron adulterated with fuminella 318
Salisbury, J. H., M. D. influence of rattlesnake poison on plants . 153
Sambul, fluid extract of 233
Saponification of oils in seeds, spontaneous 350
Saponin and senegin 43
Saratoga salt, remarks on 502
Sarsaparilla, Texas 7
Sand soap 562
Santal wood soap 564
Saponaceous cream of almonds 564
Sand and gravel as deodorizers 518
Scenting tea, Chinese method of 529
Schmid, Dr. W., on mangostin 331
Scenting of soaps cold 562
Senna, tasteless infusion of 375
Serpent bite and poisoned wounds, treatment of 182
Seringa or Brazil caoutchouc 545
Sharp, A. P., on tincture of chloride of iron 103
" " " on compound syrup of squill 219
" " " on ointment and extract of stramonium . . . 391
" " " remarks on the strength of acids and alcohol . . 490
Shaw, Thos. J., observations on the root of the cotton plant . . 419
Silicium and titanium 440
Siphonia, various species of, yielding caoutchouc . . . 545
Soaria, a new tænifuge medicine 474
Solidified milk 112
Soluble citrate of magnesia 317
Soap, oil 559
Soaps, perfumed of various kinds 558
Soap powders 565
Spiritus ætheris nitrosi 59
Spring flowers perfume 276
Spruce, R. Esq., on the india rubber of the Amazon . . . 545

Squibb, Dr. Edward R., U. S. Navy, preparation of citrate of iron and quinia and its constituents 294
Squibb, Dr. Edward R., U. S. Navy, examination of the sulphate of quinia of Messrs. Powers & Weightman 359, 505
Spermaceti soap 564
Stark, James, M. D., on a new variety of cochineal . . . 262
Starch, new researches on 139
Stearoptene of the oil of ptychotis ajowan 150
Stenhouse, John M. D., &c., on the stearoptene of ptychotis ajowan . 150
" " " " on the so-called oil of cinnamon leaf . . 163
" " " " on charcoal as a disinfectant . . . 167
" " " " on cubeba clusii or black pepper of Western Africa 267
Stewart, Dr. David, on nascent manures 246
" " " on a mode of testing the presence of phosphoric acid in a soil 429
Strogonoff's cholera tincture 22
Strecker. A., on the composition of tannic acid 49
" " researches on the constitution of quinia . . 241, 321
Structure of the starch granule 134
Strontium 359
Strychnia, antidote for 555
Substitute for tar beer 13
Substitute for quinine 111
Sugar, its alteration when kept in aqueous solution . . . 430
Sugar of milk as a falsification of cream of tartar 451
Sulphate of quinia incompatible with the acetates 97
Sulphate of quinidia in intermittents 108
Sulphate of quinia, Dr. Squibb's examination of 395
Sulphate of quinia, Powers & Weightman's letters respecting their, 300, 404, 500
Sulphate of alumina and its use 418
Sulphate of quinia 479
Sulphate of iron and quinia 316
Sulphuric acid, its purification from arsenic 417
Syrup of galls, aromatic 416
Syrup of hydriodic acid 410
Syrup of guaiac 316
Syrup of squills, compound 219
Syrup of strawberries 313
Syrup, vanilla cream 407
Syrupus capsici 306
Syrupus ferri phosphatis 104
Syrupus ferri et calcis phosphatis 105
Syrupus ferri iodidi, effect of sun light on 218

Tannin, best antidote for poisonous fungi 535
Tannic acid composition of 49
Tannic and gallic acids constitution of 51

Tar beer substitute for 13
Tasteless infusion of senna 375
Tragacanth and its adulterations 423
Transactions of the American Medical Association . . . 91
Tatzé, a new Abyssinian tænifuge 474
Texas Sarsaparilla 7
Thein and caffein, physiological effects of 109
Theobromine, genuine 150
Thomas, Dr. R. P., on Texas sarsaparilla 7
Tilghman's patent for fatty acids and glycerin 121
Tincture of muriate of iron 211
Tincture of chloride of iron 103
Tincture of cotton root 422
Titanium, preparation of 440
Tinning metals, new process for 268
Toilet vinegar 81
Toxicology, contributions to 533
Traumaticin 314
Trommsdorf, H.. on ursone, a new substance from uva ursi . . 334
Turnbull, James, Esq., on the physiological properties of some compounds of ethyl, methl and amyl . . . 31
Tin, preparation of protoxide of 527
Transparent soft soap 565
Transparent hard soap 565
Tonquin musk soap 564
Tulip nosegay perfume, ... 277
Twaddle's hydrometer, its advantages 343
Twin leaf or Jeffersonia diphylla, ... 1

Universal exhibition at Paris 85, 284
Uricoechea, E., on the fat of Myristica otoba 271
Ursone, a new substance from uva ursi 334

Valerianic acid in lupulin 25
Valerian root adulterated with scabious root 21
Value of albumen as an antidote to corrosive sublimate . . . 533
Value of hydrate of magnesia as an antidote to corrosive sublimate . 534
Vanilla cream syrup 407
Varieties 74, 176, 273, 371, 467, 558
Vinegar, aromatic 79
Vinaigre a la rose 80
Vinaigre des quartre voleurs 81
Vinaigre de cologne - - - - - - - - 81
Viviparous fish - - - - - - - - 82
Volatile acid of lupulin - - - - - - - 25
Volatile oil of lupulin - - - - - - - 25
Volatile oil of cicuta maculata - - - - - - 291

Wagner, R., on the identity of peucedanin and imperatorin - - 161
Waltl, Dr., on sulphate of alumina and its use - - - - 418
Water hemlock, analysis of - - - - - - 289
Wayne, Edward S., on Jeffersonia diphylla - - - - 1
" " examination of the preparations of the American Chemical Institute, New York - - - - 388
" " on the conversion of cane into grape sugar, observed in syrup of iodide of iron - - - - 393
" " on the wine culture of Ohio, and its products - - 493
Weddell, H. A., on Peruvian coco leaves - - - - 53, 145
" " on Howardia febrifuga - - - - - 447
" " on the extraction of caoutchoue in Brazil - - - 542
Wenzell, Wm. T., on corydalis formosa - - - - - 205
Wetherill, Dr. C. M., chemical examination of baker's bread - - 442
Whey, preparation of - - - - - - - 456
White windsor soap - - - - - - - - 562
Wiegand, T. S., on syrupus ferri phosphatis, &c. - - - - 104
Williamson, Prof., on coal tar creasote - - - - - 54
Wines, odorizing of, in Greece - - - - - - 109
Wine of assafœtida - - - - - - - - 216
Wine, Catawba - - - - - - - - 493
Windsor castle boquet - - - - - - - 277
Woorara poison - - - - - - - - 454

Xanthosantalic acid - - - - - - - 115

Yeast, an improved - - - - - - - 183
Yew tree, poisonous properties of the common - - - 536
Yellow soap - - - - - - - - 559
Young, Joseph Evans, on cicuta maculata - - - - 289
Young, James, patent for making paraffine oils from coal - - - 551